



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

STEPHENS et al.

Application No.: 09/438,185

Filed: November 11, 1999

For: CHLAMYDIA PNEUMONIAE
GENOME SEQUENCE

Examiner: Duffy, Patricia A.

Art Unit: 1645

PAPER COPY OF 1,260 PAGES OF
SEQUENCE LISTING

SEQUENCE LISTING

<110> Stephens, Richard
Mitchell, Wayne
Kalman, Sue
Davis, Ronald
The Regents of the University of California

<120> Chlamydia Pneumoniae Genome Sequence

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<140> US 09/438,185

<141> 1999-11-11

<150> US 60/108,279

<151> 1998-11-12

<150> US 60/128,606

<151> 1999-04-08

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          65             70             75             80
Cys Pro Phe Cys Ser Lys Lys Ser Arg His Ser His Gly Asp Ser Cys
          85             90             95
Ser Ser Gly Gly Cys His Ser His His Ser Asp Lys Asn
          100             105

```

<210> 3
 <211> 102
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 3
 His Met Glu Gln Phe His Leu Asp Arg Glu Glu Ile Leu Leu Leu Ala
 1 5 10 15
 Lys Ala Ser Ala Leu Gln Leu Ser Glu Leu Ile Gln Glu Tyr Gln
 20 25 30
 Thr Ser Leu Ser Ala Val Ile Thr Ser Met Lys Glu Ala Leu Ala Ile
 35 40 45
 Glu Ile Asp Asp Ala Asp Ser Cys Glu Ser Leu Phe Met His Val Val
 50 55 60
 Asn Val Glu Asp Leu Arg Glu Asp Ser Val Thr Ser Asp Phe Asn Arg
 65 70 75 80
 Glu Glu Phe Leu Arg Asn Val Pro Glu Ser Leu Gly Gly Leu Val Lys
 85 90 95
 Val Pro Ala Val Ile Lys
 100

<210> 4
 <211> 494
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 4
 Lys Ile Met Tyr Arg Tyr Ser Ala Leu Glu Leu Ala Lys Ala Val Thr
 1 5 10 15
 Leu Gly Glu Leu Thr Ala Thr Gly Val Thr Gln His Phe Phe His Arg
 20 25 30
 Ile Glu Glu Ala Glu Gly Gln Val Gly Ala Phe Ile Ser Leu Cys Lys
 35 40 45
 Glu Gln Ala Leu Glu Gln Ala Glu Leu Ile Asp Lys Lys Arg Ser Arg
 50 55 60
 Gly Glu Pro Leu Gly Lys Leu Ala Gly Val Pro Val Gly Ile Lys Asp
 65 70 75 80
 Asn Ile His Val Thr Gly Leu Lys Thr Thr Cys Ala Ser Arg Val Leu
 85 90 95
 Glu Asn Tyr Gln Pro Pro Phe Asp Ala Thr Val Val Glu Arg Ile Lys
 100 105 110
 Lys Glu Asp Gly Ile Ile Leu Gly Lys Leu Asn Met Asp Glu Phe Ala
 115 120 125
 Met Gly Ser Thr Thr Leu Tyr Ser Ala Phe His Pro Thr His Asn Pro
 130 135 140
 Trp Asp Leu Ser Arg Val Pro Gly Gly Ser Ser Gly Gly Ser Ala Ala
 145 150 155 160
 Ala Val Ser Ala Arg Phe Cys Pro Val Ala Leu Gly Ser Asp Thr Gly
 165 170 175
 Gly Ser Ile Arg Gln Pro Ala Ala Phe Cys Gly Val Val Gly Phe Lys
 180 185 190
 Pro Ser Tyr Gly Ala Val Ser Arg Tyr Gly Leu Val Ala Phe Ala Ser
 195 200 205
 Ser Leu Asp Gln Ile Gly Pro Leu Ala Asn Thr Val Glu Asp Val Ala
 210 215 220
 Leu Met Met Asp Val Phe Ser Gly Arg Asp Pro Lys Asp Ala Thr Ser
 225 230 235 240
 Arg Glu Phe Phe Arg Asp Ser Phe Met Ser Lys Leu Ser Thr Glu Val
 245 250 255
 Pro Lys Val Ile Gly Val Pro Arg Thr Phe Leu Glu Gly Leu Arg Asp
 260 265 270

Asp Ile Arg Glu Asn Phe Phe Ser Ser Leu Ala Ile Phe Glu Gly Glu
 275 280 285
 Gly Thr His Leu Val Asp Val Glu Leu Asp Ile Leu Ser His Ala Val
 290 295 300
 Ser Ile Tyr Tyr Ile Leu Ala Ser Ala Glu Ala Ala Thr Asn Leu Ala
 305 310 315 320
 Arg Phe Asp Gly Val Arg Tyr Gly Tyr Arg Ser Pro Gln Ala His Thr
 325 330 335
 Ile Ser Gln Leu Tyr Asp Leu Ser Arg Gly Glu Gly Phe Gly Lys Glu
 340 345 350
 Val Met Arg Arg Ile Leu Leu Gly Asn Tyr Val Leu Ser Ala Glu Arg
 355 360 365
 Gln Asn Val Tyr Tyr Lys Lys Ala Thr Ala Val Arg Ala Lys Ile Val
 370 375 380
 Lys Ala Phe Arg Thr Ala Phe Glu Lys Cys Glu Ile Leu Ala Met Pro
 385 390 395 400
 Val Cys Ser Ser Pro Ala Phe Glu Ile Gly Glu Ile Leu Asp Pro Val
 405 410 415
 Thr Leu Tyr Leu Gln Asp Ile Tyr Thr Val Ala Met Asn Leu Ala Tyr
 420 425 430
 Leu Pro Ala Ile Ala Val Pro Ser Gly Phe Ser Lys Glu Gly Leu Pro
 435 440 445
 Leu Gly Leu Gln Ile Ile Gly Gln Gln Gly Gln Asp Gln Gln Val Cys
 450 455 460
 Gln Val Gly Tyr Ser Phe Gln Glu His Ala Gln Ile Lys Gln Leu Phe
 465 470 475 480
 Ser Lys Arg Tyr Ala Lys Ser Val Val Leu Gly Gly Gln Ser
 485 490

<210> 5
 <211> 500
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 5
 Glu Ile Cys Gln Lys Cys Cys Ser Arg Arg Ser Ile Met Ser Ala Val
 1 5 10 15
 Tyr Ala Asp Trp Glu Ser Val Ile Gly Leu Glu Val His Val Glu Leu
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 Asn Thr Ala Ser Lys Leu Phe Ser Ser Ala Leu Asn Arg Phe Gly Asp
 35 40 45
 Glu Pro Asn Thr Asn Ile Ser Thr Val Cys Thr Gly Leu Pro Gly Ser
 50 55 60
 Leu Pro Val Leu Asn Gln Ser Ala Val Glu Lys Ala Val Leu Phe Gly
 65 70 75 80
 Cys Ala Val Glu Gly Glu Ile Ser Leu Leu Ser Arg Phe Asp Arg Lys
 85 90 95
 Ser Tyr Phe Tyr Pro Asp Ser Pro Arg Asn Phe Gln Ile Thr Gln Phe
 100 105 110
 Glu His Pro Ile Ile Arg Gly Gly Arg Ile Lys Ala Ile Val Gln Gly
 115 120 125
 Glu Glu Arg Tyr Phe Glu Leu Ala Gln Thr His Ile Glu Asp Asp Ala
 130 135 140
 Gly Met Leu Lys His Phe Gly Glu Phe Ala Gly Val Asp Tyr Asn Arg
 145 150 155 160
 Ala Gly Val Pro Leu Ile Glu Ile Val Ser Lys Pro Cys Met Phe Cys
 165 170 175
 Pro Glu Asp Ala Val Ala Tyr Ala Thr Ser Leu Val Ser Leu Leu Asp
 180 185 190
 Tyr Ile Gly Ile Ser Asp Cys Asn Met Glu Glu Gly Ser Ile Arg Phe
 195 200 205

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Val | Asn | Val | Ser | Val | Arg | Pro | Lys | Gly | Ser | Pro | Glu | Leu | Arg | Asn |
| 210 | | | | | | 215 | | | | | 220 | | | | |
| Lys | Val | Glu | Ile | Lys | Asn | Met | Asn | Ser | Phe | Ala | Phe | Met | Ala | Gln | Ala |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Glu | Ala | Glu | Lys | Gln | Arg | Gln | Ile | Asp | Glu | Tyr | Leu | Asn | Gln | Pro |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Asn | Lys | Asp | Pro | Lys | Leu | Val | Ile | Pro | Ala | Ala | Thr | Tyr | Arg | Trp | Asp |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Pro | Glu | Lys | Lys | Lys | Thr | Val | Leu | Met | Arg | Leu | Lys | Glu | Ser | Ala | Glu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Asp | Tyr | Lys | Tyr | Phe | Pro | Glu | Pro | Asp | Leu | Pro | Thr | Leu | Gln | Leu | Thr |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Glu | Ser | Tyr | Ile | Glu | Arg | Ile | Arg | Lys | Thr | Leu | Pro | Glu | Leu | Pro | Tyr |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Asp | Lys | Tyr | His | Arg | Tyr | Ile | Gln | Glu | Tyr | Gly | Leu | Ser | Glu | Asp | Ile |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ala | Ser | Ile | Leu | Ile | Ser | Asp | Lys | Asn | Ile | Ala | Thr | Phe | Phe | Glu | Val |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ala | Cys | Lys | Asp | Cys | Lys | Asn | Phe | Arg | Ser | Leu | Ser | Asn | Trp | Val | Thr |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Val | Glu | Phe | Gly | Gly | Arg | Cys | Lys | Thr | Leu | Gly | Val | Lys | Leu | Pro | Ser |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Ser | Gly | Ile | Phe | Pro | Glu | Gly | Val | Ala | Gln | Leu | Val | Asn | Ala | Ile | Asp |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Gln | Gly | Val | Ile | Thr | Gly | Lys | Ile | Ala | Lys | Glu | Ile | Ala | Asp | Leu | Met |
| | | | 405 | | | | | | 410 | | | | | 415 | |
| Met | Glu | Ser | Pro | Gly | Lys | Asn | Pro | Glu | Glu | Ile | Leu | Lys | Glu | Lys | Pro |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Glu | Leu | Leu | Pro | Met | Ser | Asp | Glu | Gly | Glu | Leu | Gln | Lys | Ile | Ile | Ala |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Glu | Val | Val | Leu | Ala | Asn | Pro | Glu | Ser | Ile | Val | Asp | Tyr | Lys | Asn | Gly |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Lys | Thr | Lys | Ala | Leu | Gly | Phe | Leu | Val | Gly | Gln | Ile | Met | Lys | Arg | Thr |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Ala | Gly | Lys | Ala | Pro | Pro | Lys | Arg | Val | Asn | Glu | Leu | Leu | Leu | Leu | Glu |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Leu | Asp | Lys | Gly | | | | | | | | | | | | |
| | | | 500 | | | | | | | | | | | | |

<210> 6
 <211> 932
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 6

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Asp | Ile | His | Phe | Asp | Leu | Gly | Thr | Lys | Met | Arg | Phe | Ser | Leu | Cys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Phe | Pro | Leu | Val | Phe | Ser | Phe | Thr | Leu | Leu | Ser | Val | Phe | Asp | Thr |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ser | Leu | Ser | Ala | Thr | Thr | Ile | Ser | Leu | Thr | Pro | Glu | Asp | Ser | Phe | His |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gly | Asp | Ser | Gln | Asn | Ala | Glu | Arg | Ser | Tyr | Asn | Val | Gln | Ala | Gly | Asp |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Val | Tyr | Ser | Leu | Thr | Gly | Asp | Val | Ser | Ile | Ser | Asn | Val | Asp | Asn | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Ala | Leu | Asn | Lys | Ala | Cys | Phe | Asn | Val | Thr | Ser | Gly | Ser | Val | Thr | Phe |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Gly | Asn | His | Gly | Leu | Tyr | Phe | Asn | Asn | Ile | Ser | Ser | Gly | Thr | |
| | | 100 | | | | | 105 | | | | | 110 | | | |
| Thr | Lys | Glu | Gly | Ala | Val | Leu | Cys | Cys | Gln | Asp | Pro | Gln | Ala | Thr | Ala |
| | | 115 | | | | | 120 | | | | | 125 | | | |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Arg | Phe | Ser | Gly | Phe | Ser | Thr | Leu | Ser | Phe | Ile | Gln | Ser | Pro | Gly | Asp | | |
| 130 | | | | | | 135 | | | | | 140 | | | | | | |
| Ile | Lys | Glu | Gln | Gly | Cys | Leu | Tyr | Ser | Lys | Asn | Ala | Leu | Met | Leu | Leu | | |
| 145 | | | | | 150 | | | | | 155 | | | | | | 160 | |
| Asn | Asn | Tyr | Val | Val | Arg | Phe | Glu | Gln | Asn | Gln | Ser | Lys | Thr | Lys | Gly | | |
| | | | | 165 | | | | | 170 | | | | | | 175 | | |
| Gly | Ala | Ile | Ser | Gly | Ala | Asn | Val | Thr | Ile | Val | Gly | Asn | Tyr | Asp | Ser | | |
| | | | 180 | | | | | 185 | | | | | | 190 | | | |
| Val | Ser | Phe | Tyr | Gln | Asn | Ala | Ala | Thr | Phe | Gly | Gly | Ala | Ile | His | Ser | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| Ser | Gly | Pro | Leu | Gln | Ile | Ala | Val | Asn | Gln | Ala | Glu | Ile | Arg | Phe | Ala | | |
| | 210 | | | | | 215 | | | | 220 | | | | | | | |
| Gln | Asn | Thr | Ala | Lys | Asn | Gly | Ser | Gly | Gly | Ala | Leu | Tyr | Ser | Asp | Gly | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| Asp | Ile | Asp | Ile | Asp | Gln | Asn | Ala | Tyr | Val | Leu | Phe | Arg | Glu | Asn | Glu | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |
| Ala | Leu | Thr | Thr | Ala | Ile | Gly | Lys | Gly | Gly | Ala | Val | Cys | Cys | Leu | Pro | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | |
| Thr | Ser | Gly | Ser | Ser | Thr | Pro | Val | Pro | Ile | Val | Thr | Phe | Ser | Asp | Asn | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | |
| Lys | Gln | Leu | Val | Phe | Glu | Arg | Asn | His | Ser | Ile | Met | Gly | Gly | Gly | Ala | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| Ile | Tyr | Ala | Arg | Lys | Leu | Ser | Ile | Ser | Ser | Gly | Pro | Thr | Leu | Phe | | | |
| 305 | | | | | 310 | | | | | 315 | | | | 320 | | | |
| Ile | Asn | Asn | Ile | Ser | Tyr | Ala | Asn | Ser | Gln | Asn | Leu | Gly | Gly | Ala | Ile | | |
| | | | | 325 | | | | | 330 | | | | | 335 | | | |
| Ala | Ile | Asp | Thr | Gly | Gly | Glu | Ile | Ser | Leu | Ser | Ala | Glu | Lys | Gly | Thr | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | |
| Ile | Thr | Phe | Gln | Gly | Asn | Arg | Thr | Ser | Leu | Pro | Phe | Leu | Asn | Gly | Ile | | |
| | | 355 | | | | | 360 | | | | | 365 | | | | | |
| His | Leu | Leu | Gln | Asn | Ala | Lys | Phe | Leu | Lys | Leu | Gln | Ala | Arg | Asn | Gly | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | |
| Tyr | Ser | Ile | Glu | Phe | Tyr | Asp | Pro | Ile | Thr | Ser | Glu | Ala | Asp | Gly | Ser | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | |
| Thr | Gln | Leu | Asn | Ile | Asn | Gly | Asp | Pro | Lys | Asn | Lys | Glu | Tyr | Thr | Gly | | |
| | | | 405 | | | | | 410 | | | | | | 415 | | | |
| Thr | Ile | Leu | Phe | Ser | Gly | Glu | Lys | Ser | Leu | Ala | Asn | Asp | Pro | Arg | Asp | | |
| | | | 420 | | | | | 425 | | | | | 430 | | | | |
| Phe | Lys | Ser | Thr | Ile | Pro | Gln | Asn | Val | Asn | Leu | Ser | Ala | Gly | Tyr | Leu | | |
| | | 435 | | | | | 440 | | | | | 445 | | | | | |
| Val | Ile | Lys | Glu | Gly | Ala | Glu | Val | Thr | Val | Ser | Lys | Phe | Thr | Gln | Ser | | |
| | 450 | | | | | | 455 | | | | 460 | | | | | | |
| Pro | Gly | Ser | His | Leu | Val | Leu | Asp | Leu | Gly | Thr | Lys | Leu | Ile | Ala | Ser | | |
| 465 | | | | | 470 | | | | 475 | | | | | | 480 | | |
| Lys | Glu | Asp | Ile | Ala | Ile | Thr | Gly | Leu | Ala | Ile | Asp | Ile | Asp | Ser | Leu | | |
| | | | | 485 | | | | 490 | | | | | | 495 | | | |
| Ser | Ser | Ser | Ser | Thr | Ala | Ala | Val | Ile | Lys | Ala | Asn | Thr | Ala | Asn | Lys | | |
| | | | 500 | | | | | 505 | | | | | 510 | | | | |
| Gln | Ile | Ser | Val | Thr | Asp | Ser | Ile | Glu | Leu | Ile | Ser | Pro | Thr | Gly | Asn | | |
| | | 515 | | | | | 520 | | | | | 525 | | | | | |
| Ala | Tyr | Glu | Asp | Leu | Arg | Met | Arg | Asn | Ser | Gln | Thr | Phe | Pro | Leu | Leu | | |
| | | | | | | 535 | | | | | 540 | | | | | | |
| Ser | Leu | Glu | Pro | Gly | Ala | Gly | Gly | Ser | Val | Thr | Val | Thr | Ala | Gly | Asp | | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | | |
| Phe | Leu | Pro | Val | Ser | Pro | His | Tyr | Gly | Phe | Gln | Gly | Asn | Trp | Lys | Leu | | |
| | | | | 565 | | | | 570 | | | | | | 575 | | | |
| Ala | Trp | Thr | Gly | Thr | Gly | Asn | Lys | Val | Gly | Glu | Phe | Phe | Trp | Asp | Lys | | |
| | | | 580 | | | | | 585 | | | | | | 590 | | | |
| Ile | Asn | Tyr | Lys | Pro | Arg | Pro | Glu | Lys | Glu | Gly | Asn | Leu | Val | Pro | Asn | | |
| | | 595 | | | | | 600 | | | | | | 605 | | | | |

Ile Leu Trp Gly Asn Ala Val Asp Val Arg Ser Leu Met Gln Val Gln
 610 615 620
 Glu Thr His Ala Ser Ser Leu Gln Thr Asp Arg Gly Leu Trp Ile Asp
 625 630 635 640
 Gly Ile Gly Asn Phe Phe His Val Ser Ala Ser Glu Asp Asn Ile Arg
 645 650 655
 Tyr Arg His Asn Ser Gly Gly Tyr Val Leu Ser Val Asn Asn Glu Ile
 660 665 670
 Thr Pro Lys His Tyr Thr Ser Met Ala Phe Ser Gln Leu Phe Ser Arg
 675 680 685
 Asp Lys Asp Tyr Ala Val Ser Asn Asn Glu Tyr Arg Met Tyr Leu Gly
 690 695 700
 Ser Tyr Leu Tyr Gln Tyr Thr Thr Ser Leu Gly Asn Ile Phe Arg Tyr
 705 710 715 720
 Ala Ser Arg Asn Pro Asn Val Asn Val Gly Ile Leu Ser Arg Arg Phe
 725 730 735
 Leu Gln Asn Pro Leu Met Ile Phe His Phe Leu Cys Ala Tyr Gly His
 740 745 750
 Ala Thr Asn Asp Met Lys Thr Asp Tyr Ala Asn Phe Pro Met Val Lys
 755 760 765
 Asn Ser Trp Arg Asn Asn Cys Trp Ala Ile Glu Cys Gly Gly Ser Met
 770 775 780
 Pro Leu Leu Val Phe Glu Asn Gly Arg Leu Phe Gln Gly Ala Ile Pro
 785 790 795 800
 Phe Met Lys Leu Gln Leu Val Tyr Ala Tyr Gln Gly Asp Phe Lys Glu
 805 810 815
 Thr Thr Ala Asp Gly Arg Arg Phe Ser Asn Gly Ser Leu Thr Ser Ile
 820 825 830
 Ser Val Pro Leu Gly Ile Arg Phe Glu Lys Leu Ala Leu Ser Gln Asp
 835 840 845
 Val Leu Tyr Asp Phe Ser Phe Ser Tyr Ile Pro Asp Ile Phe Arg Lys
 850 855 860
 Asp Pro Ser Cys Glu Ala Ala Leu Val Ile Ser Gly Asp Ser Trp Leu
 865 870 875 880
 Val Pro Ala Ala His Val Ser Arg His Ala Phe Val Gly Ser Gly Thr
 885 890 895
 Gly Arg Tyr His Phe Asn Asp Tyr Thr Glu Leu Leu Cys Arg Gly Ser
 900 905 910
 Ile Glu Cys Arg Pro His Ala Arg Asn Tyr Asn Ile Asn Cys Gly Ser
 915 920 925
 Lys Phe Arg Phe
 930

<210> 7
 <211> 53
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 7
 Lys Gln Leu Gln Glu Pro Leu Arg Ser Ala Leu Leu Glu Arg Leu Ser
 1 5 10 15
 Glu Trp Leu Val Leu Leu Gly Val Pro Ser Pro Glu Thr Thr Arg Ser
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 Thr Pro Glu Lys Asp Ala Asn Gln Leu Pro Lys Asp Ser Arg Asn Arg
 35 40 45
 Thr Leu Glu Ser Leu
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<210> 8
 <211> 1003
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 8
 Lys Ser Phe Arg Tyr Asn Leu Ser Leu Ile Phe Ser Phe Leu Val Val
 1 5 10 15
 Ile Pro Leu Thr Asp Ser Thr Thr Ser Ser Leu Ser Thr Ser Leu Leu
 20 25 30
 Asp Glu Gly Asn Pro Gln Ser Met Arg Lys Leu Arg Ile Leu Ala Ile
 35 40 45
 Val Leu Ile Ala Leu Ser Ile Ile Leu Ile Ala Gly Gly Val Val Leu
 50 55 60
 Leu Thr Val Ala Ile Pro Gly Leu Ser Ser Val Ile Ser Ser Pro Ala
 65 70 75 80
 Gly Met Gly Ala Cys Ala Leu Gly Cys Val Met Leu Ala Leu Gly Ile
 85 90 95
 Asp Val Leu Leu Lys Lys Arg Glu Val Pro Ile Val Leu Ala Ser Val
 100 105 110
 Thr Thr Thr Pro Gly Thr Gly Ser Pro Arg Ser Gly Ile Ser Ile Ser
 115 120 125
 Gly Ala Asp Ser Thr Ile Arg Ser Leu Pro Thr Tyr Leu Leu Asp Glu
 130 135 140
 Gly His Pro Gln Ser Met Arg Lys Leu Arg Ile Leu Ala Ile Val Leu
 145 150 155 160
 Ile Val Phe Ser Ile Ile Leu Ile Ala Ser Gly Val Val Leu Leu Thr
 165 170 175
 Val Ala Ile Pro Gly Leu Ser Ser Val Ile Ser Ser Pro Ala Gly Met
 180 185 190
 Gly Ala Cys Ala Leu Gly Cys Val Met Leu Ala Leu Gly Ile Asp Val
 195 200 205
 Leu Leu Lys Lys Arg Glu Val Pro Ile Val Leu Ala Ser Val Thr Thr
 210 215 220
 Thr Pro Gly Thr Gly Ser Pro Arg Ser Gly Ile Ser Ile Ser Gly Ala
 225 230 235 240
 Asp Ser Thr Ile Arg Ser Leu Pro Thr Tyr Pro Leu Asp Glu Gly His
 245 250 255
 Pro Gln Ser Met Arg Lys Leu Arg Ile Leu Ala Ile Val Leu Ile Val
 260 265 270
 Phe Ser Ile Ile Leu Ile Ala Ser Gly Val Val Leu Leu Thr Val Ala
 275 280 285
 Ile Pro Gly Leu Ser Ser Ile Ile Ser Ser Pro Ala Glu Met Gly Ala
 290 295 300
 Cys Ala Leu Gly Cys Val Met Leu Ala Leu Gly Ile Asp Val Leu Leu
 305 310 315 320
 Lys Lys Arg Glu Val Pro Ile Val Val Pro Ala Pro Ile Pro Glu Glu
 325 330 335
 Val Val Ile Asp Asp Ile Asp Glu Glu Ser Ile Arg Leu Gln Gln Glu
 340 345 350
 Ala Glu Ala Ala Leu Ala Arg Leu Pro Glu Glu Met Ser Ala Phe Glu
 355 360 365
 Gly Tyr Ile Lys Val Val Glu Ser His Leu Glu Asn Met Lys Ser Leu
 370 375 380
 Pro Tyr Asp Gly His Gly Leu Glu Glu Lys Thr Lys His Gln Ile Arg
 385 390 395 400
 Val Val Arg Ser Ser Leu Lys Ala Met Val Pro Glu Phe Leu Asp Ile
 405 410 415
 Arg Arg Ile Phe Glu Glu Glu Glu Phe Phe Phe Leu Ser Ala Arg Lys
 420 425 430

Arg Leu Ile Asp Leu Ala Thr Thr Leu Val Glu Arg Lys Ile Leu Thr
 435 440 445
 Glu Gln Leu Glu Arg Asn Asn Leu Arg Lys Ala Phe Ser Tyr Leu Tyr
 450 455 460
 Gln Asp Ser Ile Phe Lys Lys Ile Ile Asp Asn Phe Glu Lys Leu Ala
 465 470 475 480
 Trp Lys Phe Met Ile Leu Ser Lys Ser Ile Cys Arg Phe Thr Ile Ile
 485 490 495
 Phe Glu Asn His Glu His Gly Val Ala Lys Ser Leu Leu His Lys Asn
 500 505 510
 Ala Val Leu Leu Glu Lys Val Ile Tyr Arg Ser Leu Gln Lys Ser Tyr
 515 520 525
 Arg Asp Ile Gly Met Ser Ser Ala Lys Met Lys Ile Leu His Gly Asn
 530 535 540
 Pro Phe Phe Ser Leu Glu Asp Asn Lys Lys Thr Ile Met Lys Glu His
 545 550 555 560
 Ala Glu Met Leu Glu Ser Leu Ser Ser Tyr Arg Lys Val Phe Leu Ala
 565 570 575
 Leu Ser Asp Glu Asn Val Val Asp Thr Pro Ser Asp Pro Lys Lys Trp
 580 585 590
 Asp Leu Ser Gly Ile Pro Cys Arg Asp Ala Leu Ser Glu Ile Ser Arg
 595 600 605
 Asp Glu Gln Trp Gln Lys Lys Ala His Leu Lys His Gln Glu Ser Leu
 610 615 620
 Tyr Thr Gln Ala Arg Asp Arg Leu Thr Asp Gln Ser Ser Lys Glu Asn
 625 630 635 640
 Gln Lys Glu Leu Glu Lys Ala Glu Gln Glu Tyr Ile Ser Ser Trp Glu
 645 650 655
 Arg Val Lys Lys Phe Glu Ile Glu Arg Val Gln Glu Arg Ile Arg Ala
 660 665 670
 Ile Gln Lys Leu Tyr Pro Asn Ile Leu Glu Arg Glu Glu Glu Thr Thr
 675 680 685
 Gly Gln Glu Thr Val Thr Pro Thr Val Gln Gly Thr Thr Ala Ser Ser
 690 695 700
 Asp Leu Thr Asp Ile Leu Gly Arg Ile Glu Val Ser Ser Arg Glu Asp
 705 710 715 720
 Asn Gln Asn Gln Glu Ser Cys Val Lys Val Leu Arg Ser His Glu Val
 725 730 735
 Glu Met Ser Trp Glu Val Lys Gln Glu Tyr Gly Pro Lys Lys Lys Glu
 740 745 750
 Phe Gln Asp Gln Met Gly Ser Leu Glu Arg Phe Phe Thr Glu His Ile
 755 760 765
 Glu Glu Leu Glu Val Leu Gln Lys Asp Tyr Ser Lys His Leu Ser Tyr
 770 775 780
 Phe Lys Lys Val Asn Asn Lys Lys Glu Val Gln Tyr Ala Lys Phe Arg
 785 790 795 800
 Leu Lys Val Leu Glu Ser Asp Leu Glu Gly Ile Leu Ala Gln Thr Glu
 805 810 815
 Ser Ala Glu Ser Leu Leu Thr Gln Glu Glu Leu Pro Ile Leu Ala Thr
 820 825 830
 Arg Gly Ala Leu Glu Lys Ala Val Phe Lys Gly Ser Leu Cys Cys Ala
 835 840 845
 Leu Ala Ser Lys Ala Lys Pro Tyr Phe Glu Glu Asp Pro Arg Phe Gln
 850 855 860
 Asp Ser Asp Thr Gln Leu Arg Ala Leu Thr Leu Arg Leu Gln Glu Ala
 865 870 875 880
 Lys Ala Ser Leu Glu Glu Ile Lys Arg Phe Ser Asn Leu Glu Asn
 885 890 895
 Asp Ile Ala Glu Glu Arg Arg Leu Leu Lys Glu Ser Lys Gln Thr Phe
 900 905 910

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Arg | Ala | Gly | Leu | Gly | Val | Leu | Arg | Glu | Ile | Ala | Val | Glu | Ser | Thr |
| | 915 | | | | | | 920 | | | | | 925 | | | |
| Tyr | Asp | Leu | Arg | Ser | Leu | Thr | Asn | Thr | Trp | Glu | Gly | Thr | Pro | Glu | Ser |
| | 930 | | | | | 935 | | | | | 940 | | | | |
| Glu | Lys | Val | Tyr | Phe | Ser | Met | Tyr | Leu | Asn | Tyr | Tyr | Asn | Glu | Glu | Lys |
| 945 | | | | | 950 | | | | | 955 | | | | | 960 |
| Arg | Arg | Ala | Lys | Thr | Arg | Leu | Val | Glu | Met | Thr | Gln | Arg | Tyr | Arg | Asp |
| | | | 965 | | | | | | 970 | | | | | 975 | |
| Phe | Lys | Met | Ala | Leu | Glu | Ala | Met | Gln | Phe | Asn | Glu | Glu | Ala | Leu | Leu |
| | | 980 | | | | | | 985 | | | | | 990 | | |
| Gln | Glu | Glu | Leu | Ser | Ile | Gln | Ala | Pro | Ser | Glu | | | | | |
| | 995 | | | | | | 1000 | | | | | | | | |

<210> 9

<211> 302

<212> PRT

<213> Chlamydia pneumoniae

<400> 9

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Lys | Tyr | Ser | Tyr | Leu | Leu | Asn | Tyr | Pro | Pro | Pro | Pro | Arg | Arg | Ser |
| 1 | | | 5 | | | | | | 10 | | | | | 15 | |
| Leu | Gly | Val | Ser | Cys | Ser | Lys | Leu | Arg | Ser | Leu | Ser | Ile | Thr | Leu | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Val | Leu | Gly | Val | Leu | Leu | Leu | Thr | Leu | Gly | Ile | Pro | Gly | Leu | Thr | Ala |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Gly | Ile | Ser | Phe | Gly | Ala | Gly | Leu | Gly | Phe | Ser | Ala | Leu | Gly | Gly | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Leu | Val | Ile | Ser | Gly | Leu | Leu | Phe | Leu | Leu | Val | Arg | Arg | Glu | Val | Pro |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Thr | Val | Arg | Ser | Glu | Glu | Ile | Pro | Arg | Gly | Val | Ser | Val | Thr | Pro | Ser |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Glu | Glu | Pro | Ala | Leu | Glu | Lys | Ala | Gln | Lys | Glu | Pro | Glu | Thr | Lys | Lys |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ile | Leu | Asp | Arg | Leu | Pro | Lys | Glu | Leu | Asp | Gln | Leu | Asp | Thr | Tyr | Ile |
| | 115 | | | | | | 120 | | | | | | 125 | | |
| Gln | Glu | Val | Phe | Ala | Cys | Leu | Glu | Arg | Leu | Lys | Asp | Pro | Lys | Tyr | Glu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asp | Arg | Gly | Leu | Leu | Thr | Glu | Ala | Lys | Glu | Lys | Leu | Arg | Val | Phe | Asp |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Val | Val | Glu | Lys | Asp | Met | Met | Ser | Glu | Phe | Leu | Asp | Ile | Gln | Arg | Val |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Asn | Glu | Glu | Ala | Tyr | Tyr | Val | Glu | His | Cys | Gln | Asp | Pro | Leu | Glu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Asn | Ile | Ala | Tyr | Glu | Ile | Phe | Ser | Ser | Gln | Glu | Leu | Arg | Asp | Tyr | Tyr |
| | 195 | | | | | | 200 | | | | | | 205 | | |
| Cys | Ala | Gly | Val | Cys | Gly | Tyr | Leu | Pro | Ser | Gly | Asp | Ala | Arg | Ala | Asp |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Arg | Leu | Lys | Arg | Ser | Val | Lys | Glu | Val | Met | Asp | Arg | Phe | Met | Arg | Val |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Thr | Trp | Lys | Ser | Trp | Glu | Ala | Ser | Val | Met | Leu | Asp | His | Ser | Tyr | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Val | Ala | Arg | Glu | Leu | Phe | Lys | Lys | Ala | Val | Gly | Val | Leu | Glu | Glu | Ser |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Val | Tyr | Lys | Ile | Leu | Phe | Lys | Ser | Tyr | Arg | Asp | Ala | Phe | Tyr | Glu | Cys |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Glu | Lys | Ala | Lys | Ile | Gln | Arg | Asp | Gly | Arg | Phe | Lys | Trp | Leu | | |
| | 290 | | | | | 295 | | | | | | 300 | | | |

<210> 10
 <211> 477
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 10
 Asp Thr Ser Ala His Ala Glu Gln Arg Phe Arg Asp Ile Asn Gly Cys
 1 5 10 15
 Trp Glu Asp Leu Lys Gln Thr Ile Phe Trp Val Gly Glu His Asp Cys
 20 25 30
 Thr Asp Ile Glu Thr Val Arg Lys Ser Cys Met Trp Leu Asp Arg Tyr
 35 40 45
 Ala Asp Lys Phe Ile Leu Arg Glu Lys Glu Glu Lys Met Glu Arg His
 50 55 60
 Glu Leu Phe His Ala Thr Met Val Arg Lys Ala Ser Gly His Ala Tyr
 65 70 75 80
 Ala Lys Ala Lys Ala Ala Phe Glu Lys Glu Arg Ser Asn Glu Asn Gln
 85 90 95
 Arg Lys Val Lys Asp Val Glu Lys Trp Leu Ser Lys Gly Leu Ala Glu
 100 105 110
 Phe Arg Asn Gln Glu Ser Arg Arg Ala Arg Glu Arg Leu Arg Glu Leu
 115 120 125
 Gln Thr Leu Tyr Pro Glu Val Ser Val Glu Glu Arg Val Leu Glu Arg
 130 135 140
 Gln Arg Thr Lys Lys Val Asn Leu Glu Asn Leu Tyr Ala Asp Ile Glu
 145 150 155 160
 Lys Lys Tyr His His Cys Val Arg Glu Gln Glu His Tyr Trp Lys Glu
 165 170 175
 Val Glu Asn Lys Glu Ala Glu Tyr Arg Glu Asn Gly Glu Lys Val Leu
 180 185 190
 Ser Ala Glu Glu Val Ser Glu Cys Leu Gln Arg Leu Glu Asp Cys Leu
 195 200 205
 Glu Thr Trp Ser Lys Lys Leu Thr Lys Ala Glu Glu Ser Val Phe Glu
 210 215 220
 Met Lys Phe Asp Ala Thr Glu Lys Leu Gly Asn Lys Val Leu Ser Asp
 225 230 235 240
 Val Thr Asn Arg Leu Glu Ile Leu Cys Glu Asp Ala Glu Glu Met Ile
 245 250 255
 Phe Arg Ile Glu Glu Ile Glu Met Thr Leu Arg Met Val Glu Leu Pro
 260 265 270
 Leu Leu Phe Met Lys Asn Thr Phe Glu Lys Ala Ser Leu Gln Tyr Asn
 275 280 285
 Ser Cys Lys Glu Met Leu Ala Lys Val Glu Pro Gln Cys Lys Glu Ser
 290 295 300
 Pro Thr Tyr Arg Ser Ser Gln Glu Arg Leu Glu Arg Leu Asn Gln Asp
 305 310 315 320
 Leu Gln Thr Ala Tyr Thr Asn Cys Gln Glu Arg Leu Gln Gly Phe Ser
 325 330 335
 Asp Leu Glu Ser Lys Val Arg Thr Cys Arg Asp His Leu Arg Glu Gln
 340 345 350
 Met Lys His Phe Glu Val Gln Gly Leu Asn Phe Ile Asn Glu Glu Leu
 355 360 365
 Leu Trp Val Gly Ala Glu Leu Phe Thr Gln Ala Arg Leu Asp Leu Val
 370 375 380
 Ala Thr Val Pro Tyr Met Glu Phe Tyr Leu Gln Tyr His Asn Ile Lys
 385 390 395 400
 Arg Glu Lys Val Arg Ser Gln Trp Met Ala Lys Thr Glu Arg Tyr Arg
 405 410 415
 Glu Ile Arg Gln Ala Phe Gln Gly Val Met Lys Glu Asp Leu Leu Ala
 420 425 430

Glu Asp Thr Ile Leu Lys Glu Glu Asp Tyr Trp Leu Leu Arg Asp Asp
 435 440 445
 Trp Leu Leu Arg Asp Glu Arg Lys Asn Arg Gln Arg Arg Leu Ile Cys
 450 455 460
 Asn Lys Ile Ala Ala Ala Gln Gln Arg Val Lys Gly Phe
 465 470 475

<210> 11
 <211> 334
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 11
 Cys Lys Tyr Phe Tyr Leu Arg Ser Tyr Pro Pro Pro Gln His Ser
 1 5 10 15
 Val Gly Ser Ile Ser Ser Pro Ser Lys Leu Arg Val Leu Ala Ile Thr
 20 25 30
 Phe Leu Val Phe Gly Met Leu Leu Leu Ile Ser Gly Ala Leu Phe Leu
 35 40 45
 Thr Leu Gly Ile Pro Gly Leu Ser Ala Ala Ile Ser Phe Gly Leu Gly
 50 55 60
 Ile Gly Leu Ser Ala Leu Gly Gly Val Leu Met Ile Ser Gly Leu Leu
 65 70 75 80
 Cys Leu Leu Val Lys Arg Glu Ile Pro Thr Val Arg Pro Glu Glu Ile
 85 90 95
 Pro Glu Gly Val Ser Leu Ala Pro Ser Glu Glu Pro Ala Leu Gln Ala
 100 105 110
 Ala Gln Lys Thr Leu Ala Gln Leu Pro Lys Glu Leu Asp Gln Leu Asp
 115 120 125
 Thr Asp Ile Gln Glu Val Phe Ala Cys Leu Arg Lys Leu Lys Asp Ser
 130 135 140
 Lys Tyr Glu Ser Arg Ser Phe Leu Asn Asp Ala Lys Lys Glu Leu Arg
 145 150 155 160
 Val Phe Asp Phe Val Val Glu Asp Thr Leu Ser Glu Ile Phe Glu Leu
 165 170 175
 Arg Gln Ile Val Ala Gln Glu Gly Trp Asp Leu Asn Phe Leu Ile Asn
 180 185 190
 Gly Gly Arg Ser Leu Met Met Thr Ala Glu Ser Glu Ser Leu Asp Leu
 195 200 205
 Phe His Val Ser Lys Arg Leu Gly Tyr Leu Pro Ser Gly Asp Val Arg
 210 215 220
 Gly Glu Gly Leu Lys Lys Ser Ala Lys Glu Ile Val Ala Arg Leu Met
 225 230 235 240
 Ser Leu His Cys Glu Ile His Lys Val Ala Val Ala Phe Asp Arg Asn
 245 250 255
 Ser Tyr Ala Met Ala Glu Lys Ala Phe Ala Lys Ala Leu Gly Ala Leu
 260 265 270
 Glu Glu Ser Val Tyr Arg Ser Leu Thr Gln Ser Tyr Arg Asp Lys Phe
 275 280 285
 Leu Glu Ser Glu Arg Ala Lys Ile Pro Trp Asn Gly His Ile Thr Trp
 290 295 300
 Leu Arg Asp Asp Ala Lys Ser Gly Cys Ala Glu Lys Lys Leu Gly Met
 305 310 315 320
 Pro Arg Asn Val Gly Arg Asn Leu Gly Lys Gln Ser Phe Gly
 325 330

<210> 12
 <211> 493
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 12
 Lys Glu Ala Arg Asp Ala Glu Glu Arg Trp Lys Lys Phe Arg Lys Ala
 1 5 10 15
 Val Glu Trp Val Glu Glu Asp Gly Gly Phe Asp Ile Asn Asn Leu Leu
 20 25 30
 Gly Asp Trp Gly Thr Val Leu Asp Pro Tyr Arg Gln Glu Arg Met Asp
 35 40 45
 Glu Ile Thr Phe His Glu Leu Tyr Glu Lys Thr Thr Phe Leu Lys Arg
 50 55 60
 Leu His Arg Lys Cys Ala Leu Ala Lys Thr Thr Phe Glu Lys Lys Arg
 65 70 75 80
 Ser Lys Lys Asn Leu Gln Ala Val Glu Glu Ala Asn Ala Arg Arg Leu
 85 90 95
 Lys Tyr Val Arg Asp Trp Tyr Asp Gln Glu Phe Gln Lys Ala Gly Glu
 100 105 110
 Arg Leu Glu Lys Leu His Ala Leu Tyr Pro Glu Val Ser Val Ser Ile
 115 120 125
 Arg Glu Asn Lys Ile Gln Glu Thr Arg Ser Asn Leu Glu Lys Ala Tyr
 130 135 140
 Glu Ala Ile Glu Glu Asn Tyr Arg Cys Cys Val Arg Glu Gln Glu Asp
 145 150 155 160
 Tyr Trp Lys Glu Glu Glu Lys Arg Glu Ala Glu Phe Arg Glu Arg Gly
 165 170 175
 Asn Lys Ile Leu Ser Pro Glu Glu Leu Glu Ser Ser Leu Glu Gln Phe
 180 185 190
 Asp His Gly Leu Lys Asn Phe Ser Glu Lys Leu Met Glu Leu Glu Gly
 195 200 205
 His Ile Leu Lys Leu Gln Lys Glu Ala Thr Ala Glu Val Glu Asn Lys
 210 215 220
 Ile Leu Ser Asp Ala Glu Ser Arg Leu Glu Ile Val Phe Glu Asp Val
 225 230 235 240
 Lys Glu Met Pro Cys Arg Ile Glu Glu Ile Glu Lys Thr Leu Arg Met
 245 250 255
 Ala Glu Leu Pro Leu Leu Pro Thr Lys Lys Ala Phe Glu Lys Ala Cys
 260 265 270
 Ser Gln Tyr Asn Ser Cys Ala Glu Met Leu Glu Lys Val Lys Pro Tyr
 275 280 285
 Cys Lys Glu Ser Leu Ala Tyr Val Thr Ser Lys Glu Arg Leu Val Ser
 290 295 300
 Leu Asp Glu Asp Leu Arg Arg Ala Tyr Thr Glu Cys Gln Lys Arg Phe
 305 310 315 320
 Gln Gly Asp Ser Gly Leu Glu Ser Glu Val Arg Ala Cys Arg Glu Gln
 325 330 335
 Leu Arg Glu Arg Ile Gln Glu Phe Glu Thr Gln Gly Leu Asp Leu Val
 340 345 350
 Glu Lys Glu Leu Leu Cys Val Ser Ser Arg Leu Arg Asn Thr Glu Cys
 355 360 365
 Asp Cys Val Ser Gly Val Lys Lys Glu Ala Pro Pro Gly Lys Lys Phe
 370 375 380
 Tyr Ala Gln Tyr Tyr Asp Glu Ile Tyr Arg Val Arg Val Gln Ser Arg
 385 390 395 400
 Trp Met Thr Met Ser Glu Arg Leu Arg Glu Gly Val Gln Ala Cys Asn
 405 410 415
 Lys Met Leu Lys Ala Gly Leu Ser Glu Glu Asp Lys Val Leu Lys Glu
 420 425 430
 Glu Glu Tyr Trp Leu Tyr Arg Glu Glu Arg Lys Asn Lys Glu Lys Arg
 435 440 445
 Leu Val Gly Thr Lys Ile Val Ala Thr Gln Gln Arg Ile Gln Glu Phe
 450 455 460
 Gln Pro Ser Asp Ile Val Glu Ser Ser Asn Glu Lys Val Ser Leu Met
 465 470 475 480

Asp Lys Ala Arg Phe Leu Phe Asn Arg Glu Asp His Ser
 485 490

<210> 13
 <211> 246
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 13
 Phe Trp Tyr Ser Ile Met Thr Ala Ala Pro Ala Ile Leu His Val Ser
 1 5 10 15
 Pro Thr Pro Pro Glu Glu Thr Lys Phe Val Ile Pro Lys Asp Ser Lys
 20 25 30
 Ser Arg Ala Leu Gly Ile Thr Leu Leu Val Val Gly Ile Leu Leu Val
 35 40 45
 Val Cys Gly Ala Ile Val Leu Ser Gly Val Ile Ser Gly Leu Ser Ala
 50 55 60
 Leu Ile Val Cys Gly Leu Gly Ile Ser Thr Ile Ser Leu Gly Val Val
 65 70 75 80
 Leu Phe Val Leu Gly Leu Ile Leu Leu Leu Arg Lys Arg Glu Leu Thr
 85 90 95
 Leu Glu Gln Ile Glu Ala Lys Gln Ile Ala Glu Thr Phe Ala Asp Glu
 100 105 110
 Leu Lys Glu Leu Glu Met Tyr Ile Gln Ser Thr Glu Lys Ser Leu Glu
 115 120 125
 Lys Ile Glu Gly Ser Arg Tyr Ser Asp Gln Gly Phe Leu Asn Arg Ala
 130 135 140
 Thr Gln Lys Ile Leu Asp Leu Glu Ser Ser Leu Ser Ser Ile Thr Ser
 145 150 155 160
 Glu Phe Arg Asp Leu Arg Gln Leu Phe Asp Glu Glu Lys Ile Glu Leu
 165 170 175
 Leu Ser Gly Glu Arg Leu Leu Glu Phe Ile Ala Ala Asn Leu Phe Lys
 180 185 190
 Gln Gly Arg Asp Val Tyr Leu Asn Leu Gly Asn Leu Ala Asp Ile Arg
 195 200 205
 Ala Tyr Met Gly Pro Asn Asn Tyr Lys Val Ala Met Val Ile Glu Lys
 210 215 220
 Ala Lys Ala Val Val His Glu Phe Ile Val Leu Thr Thr Met Ala Arg
 225 230 235 240
 Glu Leu Glu Phe Phe Phe
 245

<210> 14
 <211> 539
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 14
 Gly Ile Arg Val Phe Phe Leu Lys Asn Lys Tyr Gly Leu Leu Lys Gly
 1 5 10 15
 Met Tyr Gln Glu Asn Leu Arg Leu Leu Glu Arg Leu Leu Tyr Asn Ser
 20 25 30
 Val Gln Lys Ser Tyr Ala Asp Arg Leu Phe Ser Tyr Glu Lys Thr Lys
 35 40 45
 Met Val His Asp Thr Pro Leu Ile Pro Trp Glu Glu Asp Lys Glu Lys
 50 55 60
 Cys Ala Glu Ala Glu Lys Ala Phe Leu Glu Gln Lys Ile Leu Leu
 65 70 75 80
 Asp Tyr Gly Lys Ser Ile Phe Trp Leu Asn Glu Asn Asp Glu Ile Asn
 85 90 95

<400> 15
 Leu Arg Asp Arg Leu Ala Phe Phe Ile Tyr Leu Leu Tyr Trp Lys Glu
 1 5 10 15
 Ser Pro Leu Arg Glu Lys Lys Val Val Met Lys Ile Pro Leu Arg Phe
 20 25 30
 Leu Leu Ile Ser Leu Val Pro Thr Leu Ser Met Ser Asn Leu Leu Gly
 35 40 45
 Ala Ala Thr Thr Glu Glu Leu Ser Ala Ser Asn Ser Phe Asp Gly Thr
 50 55 60
 Thr Ser Thr Thr Ser Phe Ser Ser Lys Thr Ser Ser Ala Thr Asp Gly
 65 70 75 80
 Thr Asn Tyr Val Phe Lys Asp Ser Val Val Ile Glu Asn Val Pro Lys
 85 90 95
 Thr Gly Glu Thr Gln Ser Thr Ser Cys Phe Lys Asn Asp Ala Ala Ala
 100 105 110
 Gly Asp Leu Asn Phe Leu Gly Gly Gly Phe Ser Phe Thr Phe Ser Asn
 115 120 125
 Ile Asp Ala Thr Thr Ala Ser Gly Ala Ala Ile Gly Ser Glu Ala Ala
 130 135 140
 Asn Lys Thr Val Thr Leu Ser Gly Phe Ser Ala Leu Ser Phe Leu Lys
 145 150 155 160
 Ser Pro Ala Ser Thr Val Thr Asn Gly Leu Gly Ala Ile Asn Val Lys
 165 170 175
 Gly Asn Leu Ser Leu Leu Asp Asn Asp Lys Val Leu Ile Gln Asp Asn
 180 185 190
 Phe Ser Thr Gly Asp Gly Gly Ala Ile Asn Cys Ala Gly Ser Leu Lys
 195 200 205
 Ile Ala Asn Asn Lys Ser Leu Ser Phe Ile Gly Asn Ser Ser Ser Thr
 210 215 220
 Arg Gly Gly Ala Ile His Thr Lys Asn Leu Thr Leu Ser Ser Gly Gly
 225 230 235 240
 Glu Thr Leu Phe Gln Gly Asn Thr Ala Pro Thr Ala Ala Gly Lys Gly
 245 250 255
 Gly Ala Ile Ala Ile Ala Asp Ser Gly Thr Leu Ser Ile Ser Gly Asp
 260 265 270
 Ser Gly Asp Ile Ile Phe Glu Gly Asn Thr Ile Gly Ala Thr Gly Thr
 275 280 285
 Val Ser His Ser Ala Ile Asp Leu Gly Thr Ser Ala Lys Ile Thr Ala
 290 295 300
 Leu Arg Ala Ala Gln Gly His Thr Ile Tyr Phe Tyr Asp Pro Ile Thr
 305 310 315 320
 Val Thr Gly Ser Thr Ser Val Ala Asp Ala Leu Asn Ile Asn Ser Pro
 325 330 335
 Asp Thr Gly Asp Asn Lys Glu Tyr Thr Gly Thr Ile Val Phe Ser Gly
 340 345 350
 Glu Lys Leu Thr Glu Ala Glu Ala Lys Asp Glu Lys Asn Arg Thr Ser
 355 360 365
 Lys Leu Leu Gln Asn Val Ala Phe Lys Asn Gly Thr Val Val Leu Lys
 370 375 380
 Gly Asp Val Val Leu Ser Ala Asn Gly Phe Ser Gln Asp Ala Asn Ser
 385 390 395 400
 Lys Leu Ile Met Asp Leu Gly Thr Ser Leu Val Ala Asn Thr Glu Ser
 405 410 415
 Ile Glu Leu Thr Asn Leu Glu Ile Asn Ile Asp Ser Leu Arg Asn Gly
 420 425 430
 Lys Lys Ile Lys Leu Ser Ala Ala Thr Ala Gln Lys Asp Ile Arg Ile
 435 440 445
 Asp Arg Pro Val Val Leu Ala Ile Ser Asp Glu Ser Phe Tyr Gln Asn
 450 455 460
 Gly Phe Leu Asn Glu Asp His Ser Tyr Asp Gly Ile Leu Glu Leu Asp
 465 470 475 480

Ala Gly Lys Asp Ile Val Ile Ser Ala Asp Ser Arg Ser Ile Asp Ala
 485 490 495
 Val Gln Ser Pro Tyr Gly Tyr Gln Gly Lys Trp Thr Ile Asn Trp Ser
 500 505 510
 Thr Asp Asp Lys Lys Ala Thr Val Ser Trp Ala Lys Gln Ser Phe Asn
 515 520 525
 Pro Thr Ala Glu Gln Glu Ala Pro Leu Val Pro Asn Leu Leu Trp Gly
 530 535 540
 Ser Phe Ile Asp Val Arg Ser Phe Gln Asn Phe Ile Glu Leu Gly Thr
 545 550 555 560
 Glu Gly Ala Pro Tyr Glu Lys Arg Phe Trp Val Ala Gly Ile Ser Asn
 565 570 575
 Val Leu His Arg Ser Gly Arg Glu Asn Gln Arg Lys Phe Arg His Val
 580 585 590
 Ser Gly Gly Ala Val Val Gly Ala Ser Thr Arg Met Pro Gly Gly Asp
 595 600 605
 Thr Leu Ser Leu Gly Phe Ala Gln Leu Phe Ala Arg Asp Lys Asp Tyr
 610 615 620
 Phe Met Asn Thr Asn Phe Ala Lys Thr Tyr Ala Gly Ser Leu Arg Leu
 625 630 635 640
 Gln His Asp Ala Ser Leu Tyr Ser Val Val Ser Ile Leu Leu Gly Glu
 645 650 655
 Gly Gly Leu Arg Glu Ile Leu Leu Pro Tyr Val Ser Lys Thr Leu Pro
 660 665 670
 Cys Ser Phe Tyr Gly Gln Leu Ser Tyr Gly His Thr Asp His Arg Met
 675 680 685
 Lys Thr Glu Ser Leu Pro Pro Pro Pro Pro Thr Leu Ser Thr Asp His
 690 695 700
 Thr Ser Trp Gly Gly Tyr Val Trp Ala Gly Glu Leu Gly Thr Arg Val
 705 710 715 720
 Ala Val Glu Asn Thr Ser Gly Arg Gly Phe Phe Gln Glu Tyr Thr Pro
 725 730 735
 Phe Val Lys Val Gln Ala Val Tyr Ala Arg Gln Asp Ser Phe Val Glu
 740 745 750
 Leu Gly Ala Ile Ser Arg Asp Phe Ser Asp Ser His Leu Tyr Asn Leu
 755 760 765
 Ala Ile Pro Leu Gly Ile Lys Leu Glu Lys Arg Phe Ala Glu Gln Tyr
 770 775 780
 Tyr His Val Val Ala Met Tyr Ser Pro Asp Val Cys Arg Ser Asn Pro
 785 790 795 800
 Lys Cys Thr Thr Thr Leu Leu Ser Asn Gln Gly Ser Trp Lys Thr Lys
 805 810 815
 Gly Ser Asn Leu Ala Arg Gln Ala Gly Ile Val Gln Ala Ser Gly Phe
 820 825 830
 Arg Ser Leu Gly Ala Ala Ala Glu Leu Phe Gly Asn Phe Gly Phe Glu
 835 840 845
 Trp Arg Gly Ser Ser Arg Ser Tyr Asn Val Asp Ala Gly Ser Lys Ile
 850 855 860
 Lys Phe
 865

<210> 16
 <211> 186
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 16
 Ile Gln Asn Gln Ser Ile Tyr Phe Thr Met Lys Ser Ser Phe Pro Lys
 1 5 10 15
 Phe Val Phe Ser Thr Phe Ala Ile Phe Pro Leu Ser Met Ile Ala Thr
 20 25 30

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Thr | Val | Leu | Asp | Ser | Ser | Ala | Ser | Phe | Asp | Gly | Asn | Lys | Asn | Gly |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Asn | Phe | Ser | Val | Arg | Glu | Ser | Gln | Glu | Asp | Ala | Gly | Thr | Thr | Tyr | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Phe | Lys | Gly | Asn | Val | Thr | Leu | Glu | Asn | Ile | Pro | Gly | Thr | Gly | Thr | Ala |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ile | Thr | Lys | Ser | Cys | Phe | Asn | Asn | Thr | Lys | Gly | Asp | Leu | Thr | Phe | Thr |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Gly | Asn | Gly | Asn | Ser | Leu | Leu | Phe | Gln | Thr | Val | Asp | Ala | Gly | Thr | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ala | Gly | Ala | Ala | Val | Asn | Ser | Ser | Val | Val | Asp | Lys | Ser | Thr | Thr | Phe |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ile | Gly | Phe | Ser | Ser | Leu | Ser | Phe | Ile | Ala | Ser | Pro | Gly | Ser | Ser | Ile |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Thr | Thr | Gly | Lys | Gly | Ala | Val | Ser | Cys | Ser | Thr | Gly | Ser | Leu | Ser | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Thr | Lys | Met | Ser | Val | Cys | Ser | Ser | Ala | Lys | Thr | Phe | Gln | Arg | Ile | Met |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ala | Val | Leu | Ser | Pro | Gln | Lys | Leu | Phe | His | | | | | | |
| | | | 180 | | | | | 185 | | | | | | | |

<210> 17

<211> 780

<212> PRT

<213> Chlamydia pneumoniae

<400> 17

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Glu | Phe | Asp | Lys | Asn | Val | Ser | Leu | Leu | Phe | Ser | Lys | Asn | Phe | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Thr | Asp | Asn | Gly | Gly | Ala | Ile | Thr | Ala | Lys | Thr | Leu | Ser | Leu | Thr | Gly |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Thr | Thr | Met | Ser | Ala | Leu | Phe | Ser | Glu | Asn | Thr | Ser | Ser | Lys | Lys | Gly |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Gly | Ala | Ile | Gln | Thr | Ser | Asp | Ala | Leu | Thr | Ile | Thr | Gly | Asn | Gln | Gly |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Glu | Val | Ser | Phe | Ser | Asp | Asn | Thr | Ser | Ser | Asp | Ser | Gly | Ala | Ala | Ile |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Phe | Thr | Glu | Ala | Ser | Val | Thr | Ile | Ser | Asn | Asn | Ala | Lys | Val | Ser | Phe |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ile | Asp | Asn | Lys | Val | Thr | Gly | Ala | Ser | Ser | Ser | Thr | Thr | Gly | Asp | Met |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Gly | Gly | Ala | Ile | Cys | Ala | Tyr | Lys | Thr | Ser | Thr | Asp | Thr | Lys | Val |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Thr | Leu | Thr | Gly | Asn | Gln | Met | Leu | Leu | Phe | Ser | Asn | Asn | Thr | Ser | Thr |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Thr | Ala | Gly | Gly | Ala | Ile | Tyr | Val | Lys | Lys | Leu | Glu | Leu | Ala | Ser | Gly |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gly | Leu | Thr | Leu | Phe | Ser | Arg | Asn | Ser | Val | Asn | Gly | Gly | Thr | Ala | Pro |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Lys | Gly | Gly | Ala | Ile | Ala | Ile | Glu | Asp | Ser | Gly | Glu | Leu | Ser | Leu | Ser |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ala | Asp | Ser | Gly | Asp | Ile | Val | Phe | Leu | Gly | Asn | Thr | Val | Thr | Ser | Thr |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Thr | Pro | Gly | Thr | Asn | Arg | Ser | Ser | Ile | Asp | Leu | Gly | Thr | Ser | Ala | Lys |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Met | Thr | Ala | Leu | Arg | Ser | Ala | Ala | Gly | Arg | Ala | Ile | Tyr | Phe | Tyr | Asp |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Pro | Ile | Thr | Thr | Gly | Ser | Ser | Thr | Thr | Val | Thr | Asp | Val | Leu | Lys | Val |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Asn | Glu | Thr | Pro | Ala | Asp | Ser | Ala | Leu | Gln | Tyr | Thr | Gly | Asn | Ile | Ile |
| | | | 260 | | | | | 265 | | | | | | 270 | |

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Thr | Gly | Glu | Lys | Leu | Ser | Glu | Thr | Glu | Ala | Ala | Asp | Ser | Lys | Asn | 275 | 280 | 285 |
| Leu | Thr | Ser | Lys | Leu | Leu | Gln | Pro | Val | Thr | Leu | Ser | Gly | Gly | Thr | Leu | 290 | 295 | 300 |
| Ser | Leu | Lys | His | Gly | Val | Thr | Leu | Gln | Thr | Gln | Ala | Phe | Thr | Gln | Gln | 305 | 310 | 315 |
| Ala | Asp | Ser | Arg | Leu | Glu | Met | Asp | Val | Gly | Thr | Thr | Leu | Glu | Pro | Ala | 325 | 330 | 335 |
| Asp | Thr | Ser | Thr | Ile | Asn | Asn | Leu | Val | Ile | Asn | Ile | Ser | Ser | Ile | Asp | 340 | 345 | 350 |
| Gly | Ala | Lys | Lys | Ala | Lys | Ile | Glu | Thr | Lys | Ala | Thr | Ser | Lys | Asn | Leu | 355 | 360 | 365 |
| Thr | Leu | Ser | Gly | Thr | Ile | Thr | Leu | Leu | Asp | Pro | Thr | Gly | Thr | Phe | Tyr | 370 | 375 | 380 |
| Glu | Asn | His | Ser | Leu | Arg | Asn | Pro | Gln | Ser | Tyr | Asp | Ile | Leu | Glu | Leu | 385 | 390 | 395 |
| Lys | Ala | Ser | Gly | Thr | Val | Thr | Ser | Thr | Ala | Val | Thr | Pro | Asp | Pro | Ile | 405 | 410 | 415 |
| Met | Gly | Glu | Lys | Phe | His | Tyr | Gly | Tyr | Gln | Gly | Thr | Trp | Gly | Pro | Ile | 420 | 425 | 430 |
| Val | Trp | Gly | Thr | Gly | Ala | Ser | Thr | Thr | Ala | Thr | Phe | Asn | Trp | Thr | Lys | 435 | 440 | 445 |
| Thr | Gly | Tyr | Ile | Pro | Asn | Pro | Glu | Arg | Ile | Gly | Ser | Leu | Val | Pro | Asn | 450 | 455 | 460 |
| Ser | Leu | Trp | Asn | Ala | Phe | Ile | Asp | Ile | Ser | Ser | Leu | His | Tyr | Leu | Met | 465 | 470 | 475 |
| Glu | Thr | Ala | Asn | Glu | Gly | Leu | Gln | Gly | Asp | Arg | Ala | Phe | Trp | Cys | Ala | 485 | 490 | 495 |
| Gly | Leu | Ser | Asn | Phe | Phe | His | Lys | Asp | Ser | Thr | Lys | Thr | Arg | Arg | Gly | 500 | 505 | 510 |
| Phe | Arg | His | Leu | Ser | Gly | Gly | Tyr | Val | Ile | Gly | Gly | Asn | Leu | His | Thr | 515 | 520 | 525 |
| Cys | Ser | Asp | Lys | Ile | Leu | Ser | Ala | Ala | Phe | Cys | Gln | Leu | Phe | Gly | Arg | 530 | 535 | 540 |
| Asp | Arg | Asp | Tyr | Phe | Val | Ala | Lys | Asn | Gln | Gly | Thr | Val | Tyr | Gly | Gly | 545 | 550 | 555 |
| Thr | Leu | Tyr | Tyr | Gln | His | Asn | Glu | Thr | Tyr | Ile | Ser | Leu | Pro | Cys | Lys | 565 | 570 | 575 |
| Leu | Arg | Pro | Cys | Ser | Leu | Ser | Tyr | Val | Pro | Thr | Glu | Ile | Pro | Val | Leu | 580 | 585 | 590 |
| Phe | Ser | Gly | Asn | Leu | Ser | Tyr | Thr | His | Thr | Asp | Asn | Asp | Leu | Lys | Thr | 595 | 600 | 605 |
| Lys | Tyr | Thr | Thr | Tyr | Pro | Thr | Val | Lys | Gly | Ser | Trp | Gly | Asn | Asp | Ser | 610 | 615 | 620 |
| Phe | Ala | Leu | Glu | Phe | Gly | Gly | Arg | Ala | Pro | Ile | Cys | Leu | Asp | Glu | Ser | 625 | 630 | 635 |
| Ala | Leu | Phe | Glu | Gln | Tyr | Met | Pro | Phe | Met | Lys | Leu | Gln | Phe | Val | Tyr | 645 | 650 | 655 |
| Ala | His | Gln | Glu | Gly | Phe | Lys | Glu | Gln | Gly | Thr | Glu | Ala | Arg | Glu | Phe | 660 | 665 | 670 |
| Gly | Ser | Ser | Arg | Leu | Val | Asn | Leu | Ala | Leu | Pro | Ile | Gly | Ile | Arg | Phe | 675 | 680 | 685 |
| Asp | Lys | Glu | Ser | Asp | Cys | Gln | Asp | Ala | Thr | Tyr | Asn | Leu | Thr | Leu | Gly | 690 | 695 | 700 |
| Tyr | Thr | Val | Asp | Leu | Val | Arg | Ser | Asn | Pro | Asp | Cys | Thr | Thr | Thr | Leu | 705 | 710 | 715 |
| Arg | Ile | Ser | Gly | Asp | Ser | Trp | Lys | Thr | Phe | Gly | Thr | Asn | Leu | Ala | Arg | 725 | 730 | 735 |
| Gln | Ala | Leu | Val | Leu | Arg | Ala | Gly | Asn | His | Phe | Cys | Phe | Asn | Ser | Asn | 740 | 745 | 750 |

Phe Glu Ala Phe Ser Gln Phe Ser Phe Glu Leu Arg Gly Ser Ser Arg
755 760 765
Asn Tyr Asn Val Asp Leu Gly Ala Lys Tyr Gln Phe
770 775 780

<210> 18

<211> 602

<212> PRT

<213> Chlamydia pneumoniae

<400> 18

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35 40 45
Asn Gly Asp Thr Ser Thr Thr Glu Phe Thr Pro Lys Ala Ala Thr Ser
50 55 60
Asp Ala Ser Gly Thr Thr Tyr Ile Leu Asp Gly Asp Val Ser Ile Ser
65 70 75 80
Gln Ala Gly Lys Gln Thr Ser Leu Thr Thr Ser Cys Phe Ser Asn Thr
85 90 95
Ala Gly Asn Leu Thr Phe Leu Gly Asn Gly Phe Ser Leu His Phe Asp
100 105 110
Asn Ile Ile Ser Ser Thr Val Ala Gly Val Val Val Ser Asn Thr Ala
115 120 125
Ala Ser Gly Ile Thr Lys Phe Ser Gly Phe Ser Thr Leu Arg Met Leu
130 135 140
Ala Ala Pro Arg Thr Thr Gly Lys Gly Ala Ile Lys Ile Thr Asp Gly
145 150 155 160
Leu Val Phe Glu Ser Ile Gly Asn Leu Asp Leu Asn Glu Asn Ala Ser
165 170 175
Ser Glu Asn Gly Gly Ala Ile Asn Thr Lys Thr Leu Ser Leu Thr Gly
180 185 190
Ser Thr Arg Phe Val Ala Phe Leu Gly Asn Ser Ser Ser Gln Gln Gly
195 200 205
Gly Ala Ile Tyr Ala Ser Gly Asp Ser Val Ile Ser Glu Asn Ala Gly
210 215 220
Ile Leu Ser Phe Gly Asn Asn Ser Ala Thr Thr Ser Gly Gly Ala Ile
225 230 235 240
Ser Ala Glu Gly Asn Leu Val Ile Ser Asn Asn Gln Asn Ile Phe Phe
245 250 255
Asp Gly Cys Lys Ala Thr Thr Asn Gly Gly Ala Ile Asp Cys Asn Lys
260 265 270
Ala Gly Ala Asn Pro Asp Pro Ile Leu Thr Leu Ser Gly Asn Glu Ser
275 280 285
Leu His Phe Leu Asn Asn Thr Ala Gly Asn Ser Gly Gly Ala Ile Tyr
290 295 300
Thr Lys Lys Leu Val Leu Ser Ser Gly Arg Gly Gly Val Leu Phe Ser
305 310 315 320
Asn Asn Lys Ala Ala Asn Ala Thr Pro Lys Gly Gly Ala Ile Ala Ile
325 330 335
Leu Asp Ser Gly Glu Ile Ser Ile Ser Ala Asp Leu Gly Asn Ile Ile
340 345 350
Phe Glu Gly Asn Thr Thr Ser Thr Thr Gly Ser Pro Ala Ser Val Thr
355 360 365
Arg Asn Ala Ile Asp Leu Ala Ser Asn Ala Lys Phe Leu Asn Leu Arg
370 375 380
Ala Thr Arg Gly Asn Lys Val Ile Phe Tyr Asp Pro Ile Thr Ser Ser
385 390 395 400

Asp Thr His Thr Pro Phe Leu Asn Leu Glu Met Ile Tyr Ala His Gln
 225 230 235 240
 Asn Asp Phe Lys Glu Asn Gly Thr Glu Gly Arg Ser Phe Gln Ser Glu
 245 250 255
 Asp Leu Phe Asn Leu Ala Val Pro Val Gly Ile Lys Phe Glu Lys Phe
 260 265 270
 Ser Asp Lys Ser Thr Tyr Asp Leu Ser Ile Ala Tyr Val Pro Asp Val
 275 280 285
 Ile Arg Asn Asp Pro Gly Cys Thr Thr Thr Leu Met Val Ser Gly Asp
 290 295 300
 Ser Trp Ser Thr Cys Gly Thr Ser Leu Ser Arg Gln Ala Leu Leu Val
 305 310 315 320
 Arg Ala Gly Asn His His Ala Phe Ala Ser Asn Phe Glu Val Phe Ser
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 Gln Phe Glu Val Glu Leu Arg Gly Ser Ser Arg Ser Tyr Ala Ile Asp
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 Leu Gly Gly Arg Phe Gly Phe
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 <212> PRT
 <213> Chlamydia pneumoniae

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 35 40 45
 Lys Ser Thr Thr Asp Ala Ala Gly Thr Thr Tyr Ser Leu Thr Gly Glu
 50 55 60
 Val Leu Tyr Ile Asp Pro Gly Lys Gly Gly Ser Ile Thr Gly Thr Cys
 65 70 75 80
 Phe Val Glu Thr Ala Gly Asp Leu Thr Phe Leu Gly Asn Gly Asn Thr
 85 90 95
 Leu Lys Phe Leu Ser Val Asp Ala Gly Ala Asn Ile Ala Val Ala His
 100 105 110
 Val Gln Gly Ser Lys Asn Leu Ser Phe Thr Asp Phe Leu Ser Leu Val
 115 120 125
 Ile Thr Glu Ser Pro Lys Ser Ala Val Thr Thr Gly Lys Gly Ser Leu
 130 135 140
 Val Ser Leu Gly Ala Val Gln Leu Gln Asp Ile Asn Thr Leu Val Leu
 145 150 155 160
 Thr Ser Asn Ala Ser Val Glu Asp Gly Gly Val Ile Lys Gly Asn Ser
 165 170 175
 Cys Leu Ile Gln Gly Ile Lys Asn Ser Ala Ile Phe Gly Gln Asn Thr
 180 185 190
 Ser Ser Lys Lys Gly Gly Ala Ile Ser Thr Thr Gln Gly Leu Thr Ile
 195 200 205
 Glu Asn Asn Leu Gly Thr Leu Lys Phe Asn Glu Asn Lys Ala Val Thr
 210 215 220
 Ser Gly Gly Ala Leu Asp Leu Gly Ala Ala Ser Thr Phe Thr Ala Asn
 225 230 235 240
 His Glu Leu Ile Phe Ser Gln Asn Lys Thr Ser Gly Asn Ala Ala Asn
 245 250 255
 Gly Gly Ala Ile Asn Cys Ser Gly Asp Leu Thr Phe Thr Asp Asn Thr
 260 265 270
 Ser Leu Leu Leu Gln Glu Asn Ser Thr Met Gln Asp Gly Gly Ala Leu
 275 280 285

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Ser | Thr | Gly | Thr | Ile | Ser | Ile | Thr | Gly | Ser | Asp | Ser | Ile | Asn | Val |
| 290 | | | | | | 295 | | | | | 300 | | | | |
| Ile | Gly | Asn | Thr | Ser | Gly | Gln | Lys | Gly | Gly | Ala | Ile | Ser | Ala | Ala | Ser |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Leu | Lys | Ile | Leu | Gly | Gln | Gly | Gly | Ala | Leu | Phe | Ser | Asn | Asn | Val | |
| | | | | 325 | | | | 330 | | | | | | 335 | |
| Val | Thr | His | Ala | Thr | Pro | Leu | Gly | Gly | Ala | Ile | Phe | Ile | Asn | Thr | Gly |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Gly | Ser | Leu | Gln | Leu | Phe | Thr | Gln | Gly | Gly | Asp | Ile | Val | Phe | Glu | Gly |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Asn | Gln | Val | Thr | Thr | Thr | Ala | Pro | Asn | Ala | Thr | Thr | Lys | Arg | Asn | Val |
| 370 | | | | | | 375 | | | | | | 380 | | | |
| Ile | His | Leu | Glu | Ser | Thr | Ala | Lys | Trp | Thr | Gly | Leu | Ala | Ala | Ser | Gln |
| 385 | | | | | | 390 | | | | 395 | | | | | 400 |
| Gly | Asn | Ala | Ile | Tyr | Phe | Tyr | Asp | Pro | Ile | Thr | Thr | Asn | Asp | Thr | Gly |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ala | Ser | Asp | Asn | Leu | Arg | Ile | Asn | Glu | Val | Ser | Ala | Asn | Gln | Lys | Leu |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ser | Gly | Ser | Ile | Val | Phe | Ser | Gly | Glu | Arg | Leu | Ser | Thr | Ala | Glu | Ala |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Ile | Ala | Glu | Asn | Leu | Thr | Ser | Arg | Ile | Asn | Gln | Pro | Val | Thr | Leu | Val |
| | 450 | | | | | 455 | | | | 460 | | | | | |
| Glu | Gly | Ser | Leu | Val | Leu | Lys | Gln | Gly | Val | Thr | Leu | Ile | Thr | Gln | Gly |
| 465 | | | | | | 470 | | | | 475 | | | | | 480 |
| Phe | Ser | Gln | Glu | Pro | Glu | Ser | Thr | Leu | Leu | Leu | Asp | Leu | Gly | Thr | Ser |
| | | | | 485 | | | | 490 | | | | | | 495 | |

Leu

<210> 21
 <211> 450
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 21

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ser | Thr | Glu | Asp | Ile | Val | Ile | Thr | Asn | Leu | Ser | Ile | Asn | Ala | Asp |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Thr | Ile | Tyr | Gly | Lys | Asn | Pro | Ile | Asn | Ile | Val | Ala | Ser | Ala | Ala | Asn |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Lys | Asn | Ile | Thr | Leu | Thr | Gly | Thr | Leu | Ala | Leu | Val | Asn | Ala | Asp | Gly |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ala | Phe | Tyr | Glu | Asn | His | Thr | Leu | Gln | Asp | Ser | Gln | Asp | Tyr | Ser | Phe |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Val | Lys | Leu | Ser | Pro | Gly | Ala | Gly | Gly | Thr | Ile | Ile | Thr | Gln | Asp | Ala |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 |
| Ser | Gln | Lys | Pro | Leu | Glu | Val | Ala | Pro | Ser | Arg | Pro | His | Tyr | Gly | Tyr |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Gln | Gly | His | Trp | Asn | Val | Gln | Val | Ile | Pro | Gly | Thr | Gly | Thr | Gln | Pro |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Ser | Gln | Ala | Asn | Leu | Glu | Trp | Val | Arg | Thr | Gly | Tyr | Leu | Pro | Asn | Pro |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Glu | Arg | Gln | Gly | Ser | Leu | Val | Pro | Asn | Ser | Leu | Trp | Gly | Ser | Phe | Val |
| | 130 | | | | | 135 | | | | 140 | | | | | |
| Asp | Gln | Arg | Ala | Ile | Gln | Glu | Ile | Met | Val | Asn | Ser | Ser | Gln | Ile | Leu |
| 145 | | | | | 150 | | | | 155 | | | | | | 160 |
| Cys | Gln | Glu | Arg | Gly | Val | Trp | Gly | Ala | Gly | Ile | Ala | Asn | Phe | Leu | His |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Arg | Asp | Lys | Ile | Asn | Glu | His | Gly | Tyr | Arg | His | Ser | Gly | Val | Gly | Tyr |
| | | 180 | | | | | 185 | | | | | 190 | | | |
| Leu | Val | Gly | Val | Gly | Thr | His | Ala | Phe | Ser | Asp | Ala | Thr | Ile | Asn | Ala |
| | | 195 | | | | | 200 | | | | | 205 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Phe | Cys | Gln | Leu | Phe | Ser | Arg | Asp | Lys | Asp | Tyr | Val | Val | Ser | Lys |
| 210 | | | | | | 215 | | | | | 220 | | | | |
| Asn | His | Gly | Thr | Ser | Tyr | Ser | Gly | Val | Val | Phe | Leu | Glu | Asp | Thr | Leu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Glu | Phe | Arg | Ser | Pro | Gln | Gly | Phe | Tyr | Thr | Asp | Ser | Ser | Ser | Glu | Ala |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Cys | Cys | Asn | Gln | Val | Val | Thr | Ile | Asp | Met | Gln | Leu | Ser | Tyr | Ser | His |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Arg | Asn | Asn | Asp | Met | Lys | Thr | Lys | Tyr | Thr | Thr | Tyr | Pro | Glu | Ala | Gln |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Gly | Ser | Trp | Ala | Asn | Asp | Val | Phe | Gly | Leu | Glu | Phe | Gly | Ala | Thr | Thr |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Tyr | Tyr | Tyr | Pro | Asn | Ser | Thr | Phe | Leu | Phe | Asp | Tyr | Tyr | Ser | Pro | Phe |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Leu | Arg | Leu | Gln | Cys | Thr | Tyr | Ala | His | Gln | Glu | Asp | Phe | Lys | Glu | Thr |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Gly | Gly | Glu | Val | Arg | His | Phe | Thr | Ser | Gly | Asp | Leu | Phe | Asn | Leu | Ala |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Val | Pro | Ile | Gly | Val | Lys | Phe | Glu | Arg | Phe | Ser | Asp | Cys | Lys | Arg | Gly |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ser | Tyr | Glu | Leu | Thr | Leu | Ala | Tyr | Val | Pro | Asp | Val | Ile | Arg | Lys | Asp |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Pro | Lys | Ser | Thr | Ala | Thr | Leu | Ala | Ser | Gly | Ala | Thr | Trp | Ser | Thr | His |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Gly | Asn | Asn | Leu | Ser | Arg | Gln | Gly | Leu | Gln | Leu | Arg | Leu | Gly | Asn | His |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Cys | Leu | Ile | Asn | Pro | Gly | Ile | Glu | Val | Phe | Ser | His | Gly | Ala | Ile | Glu |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Leu | Arg | Gly | Ser | Ser | Arg | Asn | Tyr | Asn | Ile | Asn | Leu | Gly | Gly | Lys | Tyr |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Arg | Phe | | | | | | | | | | | | | | |
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<210> 22

<211> 705

<212> PRT

<213> Chlamydia pneumoniae

<400> 22

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Leu | Trp | Ser | Asn | Pro | Asn | Leu | Arg | Leu | Met | Lys | Arg | Cys | Phe | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Phe | Leu | Ala | Ser | Phe | Val | Leu | Met | Gly | Ser | Ser | Ala | Asp | Ala | Leu | Thr |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| His | Gln | Glu | Ala | Val | Lys | Lys | Lys | Asn | Ser | Tyr | Leu | Ser | His | Phe | Lys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ser | Val | Ser | Gly | Ile | Val | Thr | Ile | Glu | Asp | Gly | Val | Leu | Asn | Ile | His |
| | | 50 | | | | 55 | | | | | 60 | | | | |
| Asn | Asn | Leu | Arg | Ile | Gln | Ala | Asn | Lys | Val | Tyr | Val | Glu | Asn | Thr | Val |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Gln | Ser | Leu | Lys | Leu | Val | Ala | His | Gly | Asn | Val | Met | Val | Asn | Tyr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Arg | Ala | Lys | Thr | Leu | Val | Cys | Asp | Tyr | Leu | Glu | Tyr | Tyr | Glu | Asp | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asp | Ser | Cys | Leu | Leu | Thr | Asn | Gly | Arg | Phe | Ala | Met | Tyr | Pro | Trp | Phe |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Gly | Gly | Ser | Met | Ile | Thr | Leu | Thr | Pro | Glu | Thr | Ile | Val | Ile | Arg |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Lys | Gly | Tyr | Ile | Ser | Thr | Ser | Glu | Gly | Pro | Lys | Lys | Asp | Leu | Cys | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Gly | Asp | Tyr | Leu | Glu | Tyr | Ser | Ser | Asp | Ser | Leu | Leu | Ser | Ile | Gly |
| | | | | 165 | | | | | 170 | | | | | 175 | |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Lys | Thr | Thr | Leu | Arg | Val | Cys | Arg | Ile | Pro | Ile | Leu | Phe | Leu | Pro | Pro | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| Phe | Ser | Ile | Met | Pro | Met | Glu | Ile | Pro | Lys | Pro | Pro | Ile | Asn | Phe | Arg | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| Gly | Gly | Thr | Gly | Gly | Phe | Leu | Gly | Ser | Tyr | Leu | Gly | Met | Ser | Tyr | Ser | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| Pro | Ile | Ser | Arg | Lys | His | Phe | Ser | Ser | Thr | Phe | Phe | Leu | Asp | Ser | Phe | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| Phe | Lys | His | Gly | Val | Gly | Met | Gly | Phe | Asn | Leu | His | Cys | Ser | Gln | Lys | | |
| | | | 245 | | | | | | 250 | | | | | 255 | | | |
| Gln | Val | Pro | Glu | Asn | Val | Phe | Asn | Met | Lys | Ser | Tyr | Tyr | Ala | His | Arg | | |
| | | 260 | | | | | | 265 | | | | | 270 | | | | |
| Leu | Ala | Ile | Asp | Met | Ala | Glu | Ala | His | Asp | Arg | Tyr | Arg | Leu | His | Gly | | |
| | 275 | | | | | | 280 | | | | | 285 | | | | | |
| Asp | Phe | Cys | Phe | Thr | His | Lys | His | Val | Asn | Phe | Ser | Gly | Glu | Tyr | His | | |
| 290 | | | | | | 295 | | | | | 300 | | | | | | |
| Leu | Ser | Asp | Ser | Trp | Glu | Thr | Val | Ala | Asp | Ile | Phe | Pro | Asn | Asn | Phe | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | |
| Met | Leu | Lys | Asn | Thr | Gly | Pro | Thr | Arg | Val | Asp | Cys | Thr | Trp | Asn | Asp | | |
| | | | 325 | | | | | | 330 | | | | | 335 | | | |
| Asn | Tyr | Phe | Glu | Gly | Tyr | Leu | Thr | Ser | Ser | Val | Lys | Val | Asn | Ser | Phe | | |
| | | 340 | | | | | | 345 | | | | | 350 | | | | |
| Gln | Asn | Ala | Asn | Gln | Glu | Leu | Pro | Tyr | Leu | Thr | Leu | Arg | Gln | Tyr | Pro | | |
| | 355 | | | | | | 360 | | | | | 365 | | | | | |
| Ile | Ser | Ile | Tyr | Asn | Thr | Gly | Val | Tyr | Leu | Glu | Asn | Ile | Val | Glu | Cys | | |
| 370 | | | | | | 375 | | | | | 380 | | | | | | |
| Gly | Tyr | Leu | Asn | Phe | Ala | Phe | Ser | Asp | His | Ile | Val | Gly | Glu | Asn | Phe | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | |
| Ser | Ser | Leu | Arg | Leu | Ala | Ala | Arg | Pro | Lys | Leu | His | Lys | Thr | Val | Pro | | |
| | | | 405 | | | | | | 410 | | | | | 415 | | | |
| Leu | Pro | Ile | Gly | Thr | Leu | Ser | Ser | Thr | Leu | Gly | Ser | Ser | Leu | Ile | Tyr | | |
| | | 420 | | | | | | 425 | | | | | 430 | | | | |
| Tyr | Ser | Asp | Val | Pro | Glu | Ile | Ser | Ser | Arg | His | Ser | Gln | Leu | Ser | Ala | | |
| | 435 | | | | | | 440 | | | | | 445 | | | | | |
| Lys | Leu | Gln | Leu | Asp | Tyr | Arg | Phe | Leu | Leu | His | Lys | Ser | Tyr | Ile | Gln | | |
| | 450 | | | | | 455 | | | | | 460 | | | | | | |
| Arg | Arg | His | Ile | Ile | Glu | Pro | Phe | Val | Thr | Phe | Ile | Thr | Glu | Thr | Arg | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | |
| Pro | Leu | Ala | Lys | Asn | Glu | Asp | His | Tyr | Ile | Phe | Ser | Ile | Gln | Asp | Ala | | |
| | | | 485 | | | | | | 490 | | | | | 495 | | | |
| Phe | His | Ser | Leu | Asn | Leu | Leu | Lys | Ala | Gly | Ile | Asp | Thr | Ser | Val | Leu | | |
| | | 500 | | | | | | 505 | | | | | 510 | | | | |
| Ser | Lys | Thr | Asn | Pro | Arg | Phe | Pro | Arg | Ile | His | Ala | Lys | Leu | Trp | Thr | | |
| | 515 | | | | | | 520 | | | | | 525 | | | | | |
| Thr | His | Ile | Leu | Ser | Asn | Thr | Glu | Ser | Lys | Pro | Thr | Phe | Pro | Lys | Thr | | |
| | 530 | | | | | 535 | | | | | | 540 | | | | | |
| Ala | Cys | Glu | Leu | Ser | Leu | Pro | Phe | Gly | Lys | Lys | Asn | Thr | Val | Ser | Leu | | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | | |
| Asp | Ala | Glu | Trp | Ile | Trp | Lys | Lys | His | Cys | Trp | Asp | His | Met | Asn | Ile | | |
| | | | 565 | | | | | | 570 | | | | | 575 | | | |
| Arg | Trp | Glu | Trp | Ile | Gly | Asn | Asp | Asn | Val | Ala | Met | Thr | Leu | Glu | Ser | | |
| | | 580 | | | | | | 585 | | | | | 590 | | | | |
| Leu | His | Arg | Ser | Lys | Tyr | Ser | Leu | Ile | Lys | Cys | Asp | Arg | Glu | Asn | Phe | | |
| | 595 | | | | | | 600 | | | | | 605 | | | | | |
| Ile | Leu | Asp | Val | Ser | Arg | Pro | Ile | Asp | Gln | Leu | Leu | Asp | Ser | Pro | Leu | | |
| | 610 | | | | | 615 | | | | | | 620 | | | | | |
| Ser | Asp | His | Arg | Asn | Leu | Ile | Leu | Gly | Lys | Leu | Phe | Val | Arg | Pro | His | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | |
| Pro | Cys | Trp | Asn | Tyr | Arg | Leu | Ser | Leu | Arg | Tyr | Gly | Trp | His | Arg | Gln | | |
| | | | 645 | | | | | | 650 | | | | | | 655 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Thr | Pro | Asn | Tyr | Leu | Glu | Tyr | Gln | Met | Ile | Leu | Gly | Thr | Lys | Ile |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Phe | Glu | His | Trp | Gln | Leu | Tyr | Gly | Val | Tyr | Glu | Arg | Arg | Glu | Ala | Asp |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Ser | Arg | Phe | Phe | Phe | Phe | Leu | Lys | Leu | Asp | Lys | Pro | Lys | Lys | Pro | Pro |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Phe | | | | | | | | | | | | | | | |
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<210> 23
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 <212> PRT
 <213> Chlamydia pneumoniae

<400> 23

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| Cys | Ser | Arg | Ser | Pro | Tyr | Pro | Asn | Ile | Glu | Ile | Leu | Ala | Arg | Gly | Val |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Glu | His | Arg | Ser | Met | Gly | Leu | Phe | His | Leu | Thr | Leu | Phe | Gly | Leu | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Cys | Ser | Leu | Pro | Ile | Ser | Leu | Val | Ala | Lys | Phe | Pro | Glu | Ser | Val |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gly | His | Lys | Ile | Leu | Tyr | Ile | Ser | Thr | Gln | Ser | Thr | Gln | Gln | Ala | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ala | Thr | Tyr | Leu | Glu | Ala | Leu | Asp | Ala | Tyr | Gly | Asp | His | Asp | Phe | Phe |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Val | Leu | Arg | Lys | Ile | Gly | Glu | Asp | Tyr | Leu | Lys | Gln | Ser | Ile | His | Ser |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Ser | Asp | Pro | Gln | Thr | Arg | Lys | Ser | Thr | Ile | Ile | Gly | Ala | Gly | Leu | Ala |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gly | Ser | Ser | Glu | Ala | Leu | Asp | Val | Leu | Ser | Gln | Ala | Met | Glu | Thr | Ala |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Asp | Pro | Leu | Gln | Gln | Leu | Leu | Val | Leu | Ser | Ala | Val | Ser | Gly | His | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gly | Lys | Thr | Ser | Asp | Asp | Leu | Leu | Phe | Lys | Ala | Leu | Ala | Ser | Pro | Tyr |
| 145 | | | | 150 | | | | | | 155 | | | | | 160 |
| Pro | Val | Ile | Arg | Leu | Glu | Ala | Ala | Tyr | Arg | Leu | Ala | Asn | Leu | Lys | Asn |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Thr | Lys | Val | Ile | Asp | His | Leu | His | Ser | Phe | Ile | His | Lys | Leu | Pro | Glu |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Glu | Ile | Gln | Cys | Leu | Ser | Ala | Ala | Ile | Phe | Leu | Arg | Leu | Glu | Thr | Glu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Glu | Ser | Asp | Ala | Tyr | Ile | Arg | Asp | Leu | Leu | Ala | Ala | Lys | Lys | Ser | Ala |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ile | Arg | Ser | Ala | Thr | Ala | Leu | Gln | Ile | Gly | Glu | Tyr | Gln | Gln | Lys | Arg |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Phe | Leu | Pro | Thr | Leu | Arg | Asn | Leu | Leu | Thr | Ser | Ala | Ser | Pro | Gln | Asp |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Gln | Glu | Ala | Ile | Leu | Tyr | Ala | Leu | Gly | Lys | Leu | Lys | Asp | Gly | Gln | Ser |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Tyr | Tyr | Asn | Ile | Lys | Lys | Gln | Leu | Gln | Lys | Pro | Asp | Val | Asp | Val | Thr |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Leu | Ala | Ala | Ala | Gln | Ala | Leu | Ile | Ala | Leu | Gly | Lys | Glu | Glu | Asp | Ala |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Leu | Pro | Val | Ile | Lys | Lys | Gln | Ala | Leu | Glu | Glu | Arg | Pro | Arg | Ala | Leu |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Tyr | Ala | Leu | Arg | His | Leu | Pro | Ser | Glu | Ile | Gly | Ile | Pro | Ile | Ala | Leu |
| | | | 325 | | | | | | 330 | | | | | 335 | |
| Pro | Ile | Phe | Leu | Lys | Thr | Lys | Asn | Ser | Glu | Ala | Lys | Leu | Asn | Val | Ala |
| | | 340 | | | | | | 345 | | | | | 350 | | |
| Leu | Ala | Leu | Leu | Glu | Leu | Gly | Cys | Asp | Thr | Pro | Lys | Leu | Leu | Glu | Tyr |
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<211> 548

<212> PRT

<213> Chlamydia pneumoniae

<400> 25

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| Glu | Asn | Arg | Ala | Lys | Leu | Leu | Tyr | Ser | Lys | Gln | His | Phe | Val | Met | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Ala | Met | Ser | Ile | Val | Leu | Asp | Lys | Ile | Gly | Lys | Ser | Leu | Gly | Thr |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Arg | Ile | Leu | Phe | Asp | Asp | Val | Ser | Val | Val | Phe | Asn | Pro | Gly | Asn | Cys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Tyr | Gly | Leu | Thr | Gly | Pro | Asn | Gly | Ala | Gly | Lys | Ser | Thr | Leu | Leu | Lys |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Ile | Met | Gly | Met | Ile | Glu | Pro | Thr | Arg | Gly | Ser | Ile | Ser | Leu | Pro |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Lys | Lys | Val | Gly | Ile | Leu | Arg | Gln | Asn | Ile | Asp | Ser | Phe | His | Asp | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Thr | Val | Leu | Asp | Cys | Val | Ile | Met | Gly | Asn | Thr | Arg | Leu | Trp | Glu | Ala |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Gln | Arg | Arg | Asp | Asn | Leu | Tyr | Leu | Gln | Glu | Phe | Thr | Asp | Ala | Ile |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Met | Glu | Leu | Gly | Glu | Ile | Glu | Glu | Ile | Ile | Gly | Glu | Glu | Asn | Gly |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Tyr | Arg | Ala | Asp | Ser | Glu | Ala | Glu | Glu | Leu | Leu | Thr | Gly | Ile | Gly | Ile |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Pro | Asn | Glu | Met | Phe | Asp | Lys | Lys | Met | Ala | Met | Ile | Pro | Ile | Asp | Leu |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Gln | Phe | Arg | Val | Leu | Leu | Cys | Gln | Ala | Leu | Phe | Gly | His | Pro | Glu | Ala |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Leu | Leu | Leu | Asp | Glu | Pro | Thr | Asn | His | Leu | Asp | Leu | Tyr | Ser | Ile | Asn |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Trp | Leu | Gly | Asn | Phe | Leu | Lys | Asp | Tyr | Glu | Gly | Thr | Val | Ile | Val | Val |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ser | His | Asp | Arg | His | Phe | Leu | Asn | Thr | Ile | Thr | Thr | His | Ile | Ala | Asp |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ile | Asp | Tyr | Asp | Thr | Ile | Ile | Ile | Tyr | Pro | Gly | Asn | Tyr | Asp | Asp | Met |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Val | Glu | Met | Lys | Thr | Ala | Ser | Arg | Glu | Gln | Glu | Lys | Ala | Asp | Ile | Lys |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Ser | Lys | Glu | Lys | Lys | Ile | Ser | Gln | Leu | Lys | Glu | Phe | Val | Ala | Lys | Phe |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Gly | Ala | Gly | Ser | Arg | Ala | Ser | Gln | Val | Gln | Ser | Arg | Leu | Arg | Glu | Ile |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Lys | Lys | Leu | Gln | Pro | Gln | Glu | Leu | Lys | Lys | Ser | Asn | Ile | Gln | Arg | Pro |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Tyr | Ile | Arg | Phe | Pro | Leu | Ser | Asp | Lys | Ser | Ser | Gly | Lys | Val | Val | Leu |
| | | | 325 | | | | | | 330 | | | | | 335 | |
| Ser | Leu | Glu | Ala | Ile | Thr | Lys | Asp | Tyr | Gly | Asp | His | Gln | Val | Ile | His |
| | | 340 | | | | | | 345 | | | | | 350 | | |
| Pro | Phe | Ser | Leu | Glu | Ile | Tyr | Gln | Gly | Asp | Lys | Leu | Gly | Ile | Ile | Gly |
| | 355 | | | | | | 360 | | | | | 365 | | | |
| Asn | Asn | Gly | Leu | Gly | Lys | Thr | Thr | Leu | Met | Lys | Leu | Leu | Ala | Gly | Val |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Glu | Ala | Pro | Ser | Ser | Gly | Ser | Ile | Lys | Leu | Gly | His | Gln | Ala | Ile | Cys |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ser | Tyr | Phe | Pro | Gln | Asn | His | Ser | Asp | Val | Leu | Ala | Asp | Cys | Gly | Gln |
| | | | | 405 | | | | | 410 | | | | | 415 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Thr | Leu | Phe | Glu | Trp | Leu | Arg | Asn | Arg | Lys | Thr | Gly | Ile | Asn | Asp |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Gln | Glu | Ile | Arg | Ser | Val | Leu | Gly | Lys | Met | Leu | Phe | Gly | Gly | Asp | Asp |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Ala | Phe | Lys | Gln | Ile | Gln | Ala | Leu | Ser | Gly | Gly | Glu | Thr | Ala | Arg | Leu |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Leu | Met | Ala | Gly | Met | Met | Leu | Glu | Asn | His | Asn | Val | Leu | Ile | Leu | Asp |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Glu | Ala | Asn | Asn | His | Leu | Asp | Leu | Glu | Ser | Val | Ser | Ala | Leu | Ser | Trp |
| | | | 485 | | | | | | 490 | | | | | 495 | |
| Ala | Ile | Asn | Asp | Tyr | Lys | Gly | Thr | Ala | Ile | Phe | Val | Ser | His | Asp | Arg |
| | | 500 | | | | | | 505 | | | | | 510 | | |
| Gly | Leu | Ile | Gln | Asp | Cys | Ala | Thr | Lys | Leu | Leu | Ile | Phe | Asp | Lys | Asp |
| | 515 | | | | | | 520 | | | | | 525 | | | |
| Lys | Ile | Thr | Phe | Phe | Asp | Gly | Thr | Met | Val | Asp | Tyr | Thr | Ala | Gly | His |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Lys | Gln | Leu | Leu | | | | | | | | | | | | |
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<210> 26
 <211> 315
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 26 | | | | | | | | | | | | | | | |
| Arg | Glu | Val | Met | Ile | Ala | Ser | Ile | Tyr | Ser | Phe | Leu | Asp | Tyr | Leu | Lys |
| 1 | | | 5 | | | | | 10 | | | | | | 15 | |
| Met | Val | Lys | Ser | Ala | Ser | Pro | His | Thr | Leu | Arg | Asn | Tyr | Cys | Leu | Asp |
| | | 20 | | | | | 25 | | | | | | 30 | | |
| Leu | Asn | Gly | Leu | Lys | Ile | Phe | Leu | Glu | Glu | Arg | Gly | Asn | Leu | Ala | Pro |
| | 35 | | | | | 40 | | | | | | 45 | | | |
| Ser | Ser | Pro | Leu | Gln | Leu | Ala | Thr | Glu | Lys | Arg | Lys | Val | Ser | Glu | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Pro | Phe | Ser | Leu | Phe | Thr | Lys | Glu | His | Val | Arg | Met | Tyr | Ile | Ala | Lys |
| 65 | | | | 70 | | | | | 75 | | | | | | 80 |
| Leu | Ile | Glu | Asn | Gly | Lys | Ala | Lys | Arg | Thr | Ile | Lys | Arg | Cys | Leu | Ser |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Ser | Ile | Lys | Ser | Phe | Ala | His | Tyr | Cys | Val | Ile | Gln | Lys | Ile | Leu | Leu |
| | | 100 | | | | | 105 | | | | | 110 | | | |
| Glu | Asn | Pro | Ala | Glu | Thr | Ile | His | Gly | Pro | Arg | Leu | Pro | Lys | Glu | Leu |
| | 115 | | | | | 120 | | | | | | 125 | | | |
| Pro | Ser | Pro | Met | Thr | Tyr | Ala | Gln | Val | Glu | Val | Leu | Met | Ala | Thr | Pro |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asp | Ile | Ser | Lys | Tyr | His | Gly | Leu | Arg | Asp | Arg | Cys | Leu | Met | Glu | Leu |
| 145 | | | | 150 | | | | | 155 | | | | | | 160 |
| Phe | Tyr | Ser | Ser | Gly | Leu | Arg | Ile | Ser | Glu | Ile | Val | Ala | Val | Asn | Lys |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Gln | Asp | Phe | Asp | Leu | Ser | Thr | His | Leu | Ile | Arg | Ile | Arg | Gly | Lys | Gly |
| | | 180 | | | | | 185 | | | | | 190 | | | |
| Lys | Lys | Glu | Arg | Ile | Ile | Pro | Val | Thr | Ser | Asn | Ala | Ile | Gln | Trp | Ile |
| | 195 | | | | | 200 | | | | | | 205 | | | |
| Gln | Ile | Tyr | Leu | Asn | His | Pro | Asp | Arg | Lys | Arg | Leu | Glu | Lys | Asp | Pro |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gln | Ala | Ile | Phe | Leu | Asn | Arg | Phe | Gly | Arg | Arg | Ile | Ser | Thr | Arg | Ser |
| 225 | | | | 230 | | | | | 235 | | | | | | 240 |
| Ile | Asp | Arg | Ser | Phe | Gln | Glu | Tyr | Leu | Arg | Arg | Ser | Gly | Leu | Ser | Gly |
| | | | 245 | | | | | 250 | | | | | 255 | | |
| His | Ile | Thr | Pro | His | Thr | Ile | Arg | His | Thr | Ile | Ala | Thr | His | Trp | Leu |
| | | 260 | | | | | 265 | | | | | 270 | | | |
| Glu | Ser | Gly | Met | Asp | Leu | Lys | Thr | Ile | Gln | Ala | Leu | Leu | Gly | His | Ser |
| | 275 | | | | | | 280 | | | | | 285 | | | |

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 Lys Gln Thr His Gln Glu Ala His Pro His Ala
 305 310 315

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 <212> PRT
 <213> Chlamydia pneumoniae

<400> 27
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 Gly Glu Gly Leu Leu Phe Asp Pro Gly Glu Gly Thr Gln Arg Gln Phe
 35 40 45
 Ile Phe Ala Asn Ile Ala Pro Thr Thr Val Asn Arg Ile Phe Val Ser
 50 55 60
 His Phe His Gly Asp His Cys Leu Gly Leu Gly Ser Met Leu Met Arg
 65 70 75 80
 Leu Asn Leu Asp Lys Val Ser His Pro Ile His Cys Tyr Tyr Pro Ala
 85 90 95
 Ser Gly Lys Lys Tyr Phe Asp Arg Leu Arg Tyr Gly Thr Ile Tyr His
 100 105 110
 Glu Thr Ile Gln Val Val Glu His Pro Ile Ser Glu Glu Gly Ile Val
 115 120 125
 Glu Asp Phe Gly Ser Phe Arg Ile Glu Ala Gln Arg Leu Gln His Gln
 130 135 140
 Val Asp Thr Leu Gly Trp Arg Ile Thr Glu Pro Asp Thr Ile Lys Phe
 145 150 155 160
 Leu Pro Lys Glu Leu Glu Ser Arg Gly Ile Arg Gly Leu Ile Ile Gln
 165 170 175
 Asp Leu Ile Arg Asp Gln Glu Ile Ser Ile Gly Gly Ser Thr Val Tyr
 180 185 190
 Leu Ser Asp Val Ser Tyr Val Arg Lys Gly Asp Ser Ile Ala Ile Ile
 195 200 205
 Ala Asp Thr Leu Pro Cys Gln Ala Ala Ile Asp Leu Ala Lys Asn Ser
 210 215 220
 Cys Met Met Leu Cys Glu Ser Thr Tyr Leu Glu Gln His Arg His Leu
 225 230 235 240
 Ala Glu Ser His Phe His Met Thr Ala Lys Gln Ala Ala Thr Leu Ala
 245 250 255
 Lys Arg Ala Ala Thr Gln Lys Leu Ile Leu Thr His Phe Ser Ala Arg
 260 265 270
 Tyr Leu Asn Leu Asp Asp Phe Tyr Lys Glu Ala Ser Ala Val Phe Pro
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 Asn Val Ser Val Ala Gln Glu Tyr Arg Ser Tyr Pro Phe Pro Lys Asn
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 Pro Leu Leu Asn Lys
 305

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 <212> PRT
 <213> Chlamydia pneumoniae

<400> 28
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| Thr | Ser | Tyr | Phe | His | Lys | Pro | Gln | Pro | Ile | Lys | Gln | Ala | Ala | Pro | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Lys | Ser | Ile | Arg | Asp | Ile | Cys | Asn | Ile | Ala | Tyr | Leu | Ile | Ile | Ile | Cys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Val | Leu | Val | Val | Val | Val | Leu | Val | Gly | Ala | Met | Leu | Cys | Met | Phe | Ile |
| | | 50 | | | | 55 | | | | | 60 | | | | |
| Pro | Ser | Val | Gly | Ile | Pro | Leu | Cys | Leu | Ser | Ser | Leu | Ala | Leu | Leu | Val |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Leu | Ser | Ile | Phe | Asn | Pro | Cys | Leu | Ile | Asn | Trp | Ile | Ser | Thr | Lys |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Lys | Thr | Lys | Glu | Ile | Ala | Pro | Lys | Asp | Ala | Ser | Glu | Ser | Gln | Pro | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Lys | Ser | Ala | Ser | Arg | Lys | Gly | Ser | Pro | Gln | Leu | Ser | Pro | His | His | Asp |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| His | Glu | Pro | Lys | Asn | Phe | Ile | Arg | Thr | Gln | Leu | Glu | Lys | Gly | Val | Asn |
| | | 130 | | | | 135 | | | | | 140 | | | | |
| Tyr | Val | Thr | Asn | Lys | Phe | Lys | Ser | Gly | Glu | Glu | Ser | Pro | His | Ile | Ser |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asp | Glu | His | His | Ser | Pro | Arg | Gln | Ser | Lys | Arg | Ser | Ser | Glu | Ile | Glu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ser | Ser | Asp | Glu | Ser | Ser | Pro | Glu | Leu | His | Arg | Lys | Ala | Lys | Gly | Lys |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ala | Pro | His | Thr | Ala | Thr | Thr | Lys | Glu | Ser | Lys | Thr | Ser | Thr | Thr | Glu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ser | Ser | Lys | Lys | Lys | Lys | Lys | Thr | Lys | His | Ser | Leu | His | Arg | Thr | Thr |
| | | 210 | | | | 215 | | | | | 220 | | | | |
| Ser | Ser | Ile | His | Lys | Arg | Ser | Ala | Pro | Lys | Pro | Met | Val | Pro | Ser | Lys |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Lys | Arg | Lys | Pro | Val | Leu | Leu | Lys | Lys | Thr | Val | Pro | Leu | Pro | Ile | Glu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Asp | Leu | Glu | His | Gln | Ser | Ser | Gly | Asn | Glu | Ser | Ser | Asp | Ser | Ser | Ser |
| | | | 260 | | | | | 265 | | | | 270 | | | |
| Pro | Pro | Pro | Val | Gln | Arg | Lys | Ala | Ile | Leu | Pro | Trp | Phe | Cys | Lys | Gln |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Pro | Thr | Asp | Pro | | | | | | | | | | | | |
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<210> 29
 <211> 825
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 29

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Ser | Ile | Arg | Thr | Ile | Val | Asp | Ser | Thr | Thr | Asn | Ser | Asp | Ser | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Leu | Asp | Pro | Asn | Pro | Glu | Asp | Val | Glu | Lys | Leu | Leu | Asp | Glu | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Glu | Glu | Ser | Glu | Asp | Gln | Ser | Thr | Glu | Arg | Leu | Leu | Pro | Ser | Glu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Phe | Ile | Leu | Pro | Leu | Asn | Lys | Arg | Pro | Phe | Phe | Pro | Gly | Met | Ala |
| | | 50 | | | | 55 | | | | | 60 | | | | |
| Ala | Pro | Ile | Leu | Ile | Glu | Ser | Gly | Pro | Tyr | Tyr | Glu | Val | Leu | Lys | Val |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Ala | Lys | Ser | Ser | Gln | Lys | Tyr | Ile | Gly | Leu | Val | Leu | Thr | Lys | Lys |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Glu | Asn | Ala | Asp | Ile | Leu | Lys | Val | Ser | Phe | Asn | Gln | Leu | His | Lys | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gly | Val | Ala | Ala | Arg | Ile | Leu | Arg | Ile | Met | Pro | Ile | Glu | Gly | Gly | Ser |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ala | Gln | Val | Leu | Leu | Ser | Ile | Glu | Glu | Arg | Ile | Arg | Ile | Ile | Glu | Pro |
| | | 130 | | | | | 135 | | | | | 140 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Lys | Asp | Lys | Tyr | Leu | Lys | Ala | Arg | Val | Ser | Tyr | His | Ala | Asp | Asn |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Lys | Glu | Leu | Thr | Glu | Glu | Leu | Lys | Ala | Tyr | Ser | Ile | Ser | Ile | Val | Ser |
| | | | | 165 | | | | | 170 | | | | | | 175 |
| Val | Ile | Lys | Asp | Leu | Leu | Lys | Leu | Asn | Pro | Leu | Phe | Lys | Glu | Glu | Leu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Gln | Ile | Phe | Leu | Gly | His | Ser | Asp | Phe | Thr | Glu | Pro | Gly | Lys | Leu | Ala |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Asp | Phe | Ser | Val | Ala | Leu | Thr | Thr | Ala | Thr | Arg | Glu | Glu | Leu | Gln | Glu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Val | Leu | Glu | Thr | Thr | Asn | Met | His | Asp | Arg | Ile | Asp | Lys | Ala | Leu | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Leu | Lys | Lys | Glu | Leu | Asp | Leu | Ser | Arg | Leu | Gln | Ser | Ser | Ile | Asn |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Gln | Lys | Ile | Glu | Ala | Thr | Ile | Thr | Lys | Ser | Gln | Lys | Glu | Phe | Phe | Leu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Lys | Glu | Gln | Leu | Lys | Thr | Ile | Lys | Lys | Glu | Leu | Gly | Leu | Glu | Lys | Glu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Asp | Arg | Ala | Ile | Asp | Ile | Glu | Lys | Phe | Ser | Glu | Arg | Leu | Arg | Lys | Arg |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| His | Val | Pro | Asp | Tyr | Ala | Met | Glu | Val | Ile | Gln | Asp | Glu | Ile | Glu | Lys |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Leu | Gln | Thr | Leu | Glu | Thr | Ser | Ser | Ala | Glu | Tyr | Thr | Val | Cys | Arg | Asn |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Tyr | Leu | Asp | Trp | Leu | Thr | Ile | Ile | Pro | Trp | Gly | Ile | Gln | Ser | Lys | Glu |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Tyr | His | Asp | Leu | Lys | Lys | Ala | Glu | Ile | Val | Leu | Asn | Lys | Asp | His | Tyr |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Gly | Leu | Asp | Glu | Ile | Lys | Gln | Arg | Ile | Leu | Glu | Leu | Ile | Ser | Val | Gly |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Lys | Leu | Ser | Lys | Gly | Leu | Lys | Gly | Ser | Ile | Ile | Cys | Leu | Val | Gly | Pro |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Pro | Gly | Val | Gly | Lys | Thr | Ser | Ile | Gly | Arg | Ser | Ile | Ala | Lys | Val | Leu |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| His | Arg | Lys | Phe | Phe | Arg | Phe | Ser | Val | Gly | Gly | Met | Arg | Asp | Glu | Ala |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Glu | Ile | Lys | Gly | His | Arg | Arg | Thr | Tyr | Ile | Gly | Ala | Met | Pro | Gly | Lys |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Met | Val | Gln | Ala | Leu | Lys | Gln | Ser | Gln | Ala | Met | Asn | Pro | Val | Ile | Met |
| | | 450 | | | | 455 | | | | | 460 | | | | |
| Ile | Asp | Glu | Val | Asp | Lys | Ile | Gly | Ala | Ser | Tyr | His | Gly | Asp | Pro | Ala |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Ser | Ala | Leu | Leu | Glu | Val | Leu | Asp | Pro | Glu | Gln | Asn | Lys | Asp | Phe | Leu |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Asp | His | Tyr | Leu | Asp | Val | Arg | Val | Asp | Leu | Ser | Asn | Val | Leu | Phe | Ile |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Leu | Thr | Ala | Asn | Val | Leu | Asp | Thr | Ile | Pro | Asp | Pro | Leu | Leu | Asp | Arg |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Met | Glu | Ile | Leu | Arg | Leu | Ser | Gly | Tyr | Ile | Leu | Glu | Glu | Lys | Leu | Gln |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Ile | Ala | Lys | Lys | Tyr | Leu | Val | Pro | Lys | Ala | Arg | Lys | Glu | Ile | Gly | Leu |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Thr | Ala | Ser | Glu | Val | Asn | Phe | Gln | Pro | Glu | Ala | Leu | Lys | Tyr | Met | Ile |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Asn | Asn | Tyr | Ala | Arg | Glu | Ala | Gly | Val | Arg | Thr | Leu | Asn | Gly | Asn | Ile |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Lys | Lys | Val | Leu | Arg | Lys | Val | Ala | Leu | Lys | Ile | Val | Gln | Asn | Gln | Glu |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Lys | Pro | Lys | Ser | Lys | Lys | Ile | Thr | Phe | Lys | Ile | Ser | Ser | Lys | Asn | Leu |
| | 610 | | | | | | 615 | | | | | 620 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Thr | Tyr | Leu | Gly | Lys | Pro | Ile | Phe | Ser | Ser | Asp | Arg | Phe | Tyr | Glu |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Ser | Thr | Pro | Val | Gly | Val | Ala | Thr | Gly | Leu | Ala | Trp | Thr | Ser | Leu | Gly |
| | | | | 645 | | | | | 650 | | | | | | 655 |
| Gly | Ala | Thr | Leu | Tyr | Ile | Glu | Ser | Val | Gln | Val | Ser | Ser | Leu | Lys | Thr |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Asp | Met | His | Leu | Thr | Gly | Gln | Ala | Gly | Glu | Val | Met | Lys | Glu | Ser | Ser |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Gln | Ile | Ala | Trp | Thr | Tyr | Leu | His | Ser | Ala | Leu | His | Arg | Tyr | Ala | Pro |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Gly | Tyr | Thr | Phe | Phe | Pro | Lys | Ser | Gln | Val | His | Ile | His | Ile | Pro | Glu |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Gly | Ala | Thr | Pro | Lys | Asp | Gly | Pro | Ser | Ala | Gly | Ile | Thr | Met | Val | Thr |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Ser | Leu | Leu | Ser | Leu | Leu | Leu | Glu | Thr | Pro | Val | Val | Asn | Asn | Leu | Gly |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Met | Thr | Gly | Glu | Ile | Thr | Leu | Thr | Gly | Arg | Val | Leu | Gly | Val | Gly | Gly |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Ile | Arg | Glu | Lys | Leu | Ile | Ala | Ala | Arg | Arg | Ser | Arg | Leu | Asn | Ile | Leu |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Ile | Phe | Pro | Glu | Asp | Asn | Arg | Arg | Asp | Tyr | Glu | Glu | Leu | Pro | Ala | Tyr |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Leu | Lys | Thr | Gly | Leu | Lys | Ile | His | Phe | Val | Ser | His | Tyr | Asp | Asp | Val |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Leu | Lys | Val | Ala | Phe | Pro | Lys | Leu | Lys | | | | | | | |
| | | | 820 | | | | | 825 | | | | | | | |

<210> 30
 <211> 262
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 30

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Met | Phe | Leu | Gln | Phe | Phe | His | Pro | Ile | Val | Phe | Ser | Asp | Gln | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Ser | Phe | Leu | Pro | Tyr | Leu | Gly | Lys | Ser | Ser | Gly | Ile | Ile | Glu | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Cys | Ser | Asn | Ile | Val | Glu | His | Tyr | Leu | His | Leu | Gly | Gly | Asp | Thr | Ser |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Val | Ile | Ile | Thr | Gly | Val | Ser | Gly | Ala | Thr | Phe | Leu | Ser | Val | Asp | His |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ala | Leu | Pro | Ile | Ser | Lys | Ser | Glu | Lys | Ile | Ile | Lys | Ile | Leu | Ser | Tyr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ile | Leu | Ile | Leu | Pro | Leu | Ile | Leu | Ala | Leu | Phe | Ile | Lys | Ile | Val | Leu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Arg | Ile | Ile | Leu | Phe | Phe | Lys | Tyr | Arg | Gly | Leu | Ile | Leu | Asp | Val | Lys |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Lys | Glu | Asp | Leu | Lys | Lys | Thr | Leu | Thr | Pro | Asp | Gln | Glu | Asn | Leu | Ser |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Pro | Leu | Pro | Ser | Pro | Thr | Thr | Leu | Lys | Lys | Ile | His | Ala | Leu | His |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ile | Leu | Val | Arg | Ser | Gly | Lys | Thr | Tyr | Asn | Glu | Leu | Ile | Gln | Glu | Gly |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Phe | Ser | Phe | Thr | Lys | Ile | Thr | Asp | Leu | Gly | Gln | Ala | Pro | Ser | Pro | Lys |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Gln | Asp | Ile | Gly | Phe | Ser | Tyr | Asn | Ser | Leu | Leu | Pro | Asn | Phe | Tyr | Phe |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| His | Ser | Leu | Val | Ser | Val | Pro | Asn | Ile | Ser | Gly | Glu | Glu | Arg | Ala | Leu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Asn | Tyr | His | Lys | Glu | Gln | Gln | Glu | Glu | Met | Ala | Val | Lys | Leu | Lys | Thr |
| 210 | | | | | | 215 | | | | | | 220 | | | |

Met Gln Ala Cys Ser Phe Val Phe Arg Ser Leu His Leu Pro Ser Met
 225 230 235 240
 Gln Thr Lys Asp Lys Lys Ala Gly Phe Gly Leu Leu Thr Phe Phe Pro
 245 250 255
 Trp Lys Ile Tyr Pro Leu
 260

<210> 31
 <211> 150
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 31
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 1 5 10 15
 Arg Tyr Ile Arg Phe Phe Ala Ala Leu Asn Ile Arg Met Asn Asp Gly
 20 25 30
 Leu Arg Phe Cys Tyr Ser Tyr Ile Leu Leu Arg Pro Met Leu Leu Asp
 35 40 45
 Ser Ser Leu Leu Arg Lys Gly Gly Gln Glu Leu Leu Lys Lys Phe Gln
 50 55 60
 Ile Lys Leu Arg Thr Thr Ser Ile Lys Ser Ser Leu Ile Ser Leu Arg
 65 70 75 80
 Gln Gln Leu Gly Lys Arg Glu Ala Thr Gln Ser Asp Ile Leu Tyr Gly
 85 90 95
 Thr Ser Arg Phe Gln Tyr Leu Asn Ser Phe Glu Ile Glu Asp Pro Arg
 100 105 110
 Ile Pro Pro Thr Met Ala Ala Gln Leu Glu Ile Thr Trp Ser Arg
 115 120 125
 Ser Val Met Glu Leu Lys Ile Lys Phe Tyr Val Tyr Leu Asn Ser Glu
 130 135 140
 Arg Asn Lys Thr Lys Pro
 145 150

<210> 32
 <211> 230
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 32
 Leu Lys Gly Val Cys Trp Tyr Ser Leu Phe Phe Tyr Ile Lys Asn Arg
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 Arg Met Tyr Phe Tyr Lys Tyr Val Ile Ile Asp Thr Ser Gly Tyr Tyr
 20 25 30
 Pro Phe Leu Ala Cys Val Asp Asn Gln Gln Val Leu Glu His Trp Ser
 35 40 45
 Leu Pro Val Gly Pro Asp Leu Gly Ile Val Leu Glu Phe Leu Phe Lys
 50 55 60
 Ser Lys Asn Leu Ser Phe Gln Gly Val Ala Val Ala Leu Gly Pro Gly
 65 70 75 80
 Asn Phe Ser Ala Thr Arg Ile Gly Ile Ser Phe Ala Gln Gly Leu Ala
 85 90 95
 Met Ala Lys Asn Val Pro Leu Leu Gly Tyr Ser Ser Leu Glu Gly Tyr
 100 105 110
 Leu Leu Ser Lys Asp Glu Lys Lys Ala Leu Met Leu Pro Leu Gly Lys
 115 120 125
 Arg Gly Gly Val Leu Thr Leu Ser Ser Glu Ile Pro Glu Glu Gly Leu
 130 135 140
 Asn Glu Lys Arg Arg Gly Val Gly Pro Gly Ala Leu Leu Ser Tyr Glu
 145 150 155 160

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Ala | Ser | Asp | Tyr | Cys | Val | Ala | His | Gly | Tyr | Tyr | His | Val | Ile | Ser |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Pro | Asn | Pro | Gln | Leu | Phe | Ala | Ser | Ser | Phe | Ser | Asp | Lys | Ile | Thr | Val |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Glu | Glu | Val | Ala | Pro | Ser | Val | Glu | Gln | Ile | Arg | Arg | His | Val | Ile | Ser |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Gln | Phe | Met | Phe | Val | Glu | Tyr | Asp | Lys | Gln | Leu | Ser | Pro | Asp | Tyr | Arg |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ser | Tyr | Ser | Cys | Ile | Phe | | | | | | | | | | |
| 225 | | | | | 230 | | | | | | | | | | |

<210> 33

<211> 59

<212> PRT

<213> Chlamydia pneumoniae

<400> 33

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Met | Pro | Ser | Val | Lys | Val | Arg | Val | Gly | Glu | Pro | Val | Asp | Arg | Ala |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Arg | Ile | Leu | Lys | Lys | Lys | Ile | Asp | Lys | Glu | Gly | Ile | Leu | Lys | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Lys | Ser | His | Arg | Phe | Tyr | Asp | Lys | Pro | Ser | Val | Lys | Lys | Arg | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Lys | Ser | Lys | Ala | Ala | Ala | Lys | Tyr | Arg | Ser | Arg | | | | | |
| | 50 | | | | | 55 | | | | | | | | | |

<210> 34

<211> 406

<212> PRT

<213> Chlamydia pneumoniae

<400> 34

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Leu | Ile | Gly | Asn | Val | Val | Phe | Val | Gly | Ser | Val | Ser | Gly | Met | Asp |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Tyr | Tyr | Ser | Ile | Leu | Gly | Ile | Ser | Lys | Thr | Ala | Ser | Ala | Glu | Glu | Ile |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Lys | Lys | Ala | Tyr | Arg | Lys | Leu | Ala | Val | Lys | Tyr | His | Pro | Asp | Lys | Asn |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Pro | Gly | Asp | Ala | Ala | Ala | Glu | Lys | Arg | Phe | Lys | Glu | Val | Ser | Glu | Ala |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Tyr | Glu | Val | Leu | Ser | Asp | Pro | Gln | Lys | Arg | Asp | Ser | Tyr | Asp | Arg | Phe |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Gly | Lys | Asp | Gly | Pro | Phe | Ala | Gly | Ala | Gly | Gly | Phe | Gly | Gly | Ala | Gly |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Gly | Met | Gly | Asn | Met | Glu | Asp | Ala | Leu | Arg | Thr | Phe | Met | Gly | Ala | Phe |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gly | Gly | Glu | Phe | Gly | Gly | Gly | Ser | Phe | Phe | Asp | Gly | Leu | Phe | Gly | Gly |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Gly | Glu | Ala | Phe | Gly | Met | Arg | Ser | Asp | Pro | Ala | Gly | Ala | Arg | Gln |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gly | Ala | Ser | Lys | Lys | Val | His | Ile | Asn | Leu | Thr | Phe | Glu | Glu | Ala | Ala |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | |
| His | Gly | Val | Glu | Lys | Glu | Leu | Val | Val | Ser | Gly | Tyr | Lys | Ser | Cys | Glu |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Thr | Cys | Ser | Gly | Gln | Gly | Ala | Val | Asn | Pro | Gln | Gly | Ile | Lys | Ser | Cys |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Glu | Arg | Cys | Lys | Gly | Ser | Gly | Gln | Val | Val | Gln | Ser | Arg | Gly | Phe | Phe |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ser | Met | Ala | Ser | Thr | Cys | Pro | Glu | Cys | Gly | Gly | Glu | Gly | Arg | Ile | Ile |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Thr | Asp | Pro | Cys | Ser | Ser | Cys | Arg | Gly | Gln | Gly | Arg | Val | Lys | Asp | Lys |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|
| 225 | | | | | 230 | | | | | 235 | | | | 240 |
| Arg | Ser | Val | His | Val | His | Ile | Pro | Ala | Gly | Val | Asp | Ser | Gly | Met Arg |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Leu | Lys | Met | Glu | Gly | Tyr | Gly | Asp | Ala | Gly | Gln | Asn | Gly | Ala | Pro Ser |
| | | | 260 | | | | | 265 | | | | | 270 | |
| Gly | Asp | Leu | Tyr | Val | Phe | Ile | Asp | Val | Glu | Ser | His | Pro | Val | Phe Glu |
| | | 275 | | | | | 280 | | | | | 285 | | |
| Arg | Arg | Gly | Asp | Asp | Leu | Ile | Leu | Glu | Leu | Pro | Ile | Gly | Phe | Val Asp |
| | 290 | | | | | 295 | | | | | 300 | | | |
| Ala | Ala | Leu | Gly | Met | Lys | Lys | Glu | Ile | Pro | Thr | Leu | Leu | Lys | Thr Glu |
| 305 | | | | | 310 | | | | | 315 | | | | 320 |
| Gly | Ser | Cys | Arg | Leu | Thr | Val | Pro | Glu | Gly | Ile | Gln | Ser | Gly | Thr Ile |
| | | | | 325 | | | | 330 | | | | | | 335 |
| Leu | Lys | Val | Arg | Asn | Gln | Gly | Phe | Pro | Asn | Val | His | Gly | Lys | Gly Arg |
| | | | 340 | | | | 345 | | | | | | 350 | |
| Gly | Asp | Leu | Leu | Val | Arg | Ile | Ser | Val | Glu | Thr | Pro | Gln | Asn | Leu Ser |
| | 355 | | | | | 360 | | | | | 365 | | | |
| Glu | Glu | Gln | Lys | Glu | Leu | Leu | Arg | Thr | Phe | Ala | Ser | Thr | Glu | Lys Ala |
| | 370 | | | | | 375 | | | | 380 | | | | |
| Glu | Asn | Phe | Pro | Lys | Lys | Arg | Ser | Phe | Leu | Asp | Lys | Ile | Lys | Gly Phe |
| 385 | | | | | 390 | | | | | 395 | | | | 400 |
| Phe | Ser | Asp | Phe | Thr | Val | | | | | | | | | |
| | | | | 405 | | | | | | | | | | |

<210> 35
 <211> 681
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 35

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Arg | Ser | Met | Gly | Val | Val | Gln | Asn | Gln | Val | Ile | Ser | Ser | Ile | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Asp | Val | Leu | Lys | Leu | Val | Trp | Glu | Leu | Arg | Phe | Ala | Glu | His | Lys | Met |
| | | | 20 | | | | 25 | | | | | | 30 | | |
| Leu | Leu | Leu | Ser | Arg | Gln | Ser | Gly | Ser | Gly | Gly | Thr | Phe | Gln | Leu | Ser |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Cys | Ala | Gly | His | Glu | Leu | Ala | Gly | Val | Leu | Ala | Gly | Lys | Ser | Leu | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Pro | Gly | Lys | Asp | Trp | Ser | Phe | Pro | Tyr | Tyr | Arg | Asp | Gln | Gly | Phe | Pro |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | |
| Ile | Gly | Leu | Gly | Cys | Asp | Leu | Ser | Glu | Ile | Phe | Ala | Ser | Phe | Leu | Ala |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Arg | Thr | Thr | Pro | Asn | His | Ser | Ser | Ala | Arg | Met | Met | Pro | Tyr | His | Tyr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | His | Lys | Lys | Leu | Arg | Ile | Cys | Cys | Gln | Ser | Ser | Val | Val | Gly | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gln | Phe | Leu | Gln | Ala | Ala | Gly | Arg | Ala | Trp | Ala | Val | Lys | His | Ser | Ser |
| | 130 | | | | | 135 | | | | 140 | | | | | |
| Ala | Asp | Glu | Val | Val | Tyr | Val | Ser | Gly | Gly | Asp | Gly | Ala | Thr | Ser | Gln |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gly | Glu | Phe | His | Glu | Met | Leu | Asn | Phe | Val | Ala | Leu | His | Gln | Leu | Pro |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Ile | Thr | Val | Ile | Gln | Asn | Asn | His | Trp | Ala | Ile | Ser | Val | Pro | Phe |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Glu | Asp | Gln | Cys | Gly | Ala | Asp | Leu | Ala | Ser | Leu | Gly | Arg | Cys | His | Gln |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Gly | Leu | Ala | Val | Tyr | Glu | Val | Asp | Gly | Gly | Asn | Tyr | Thr | Ser | Leu | Thr |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Glu | Thr | Phe | Ser | His | Ala | Val | Asp | Gln | Ala | Arg | Gln | His | Ser | Val | Pro |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |

<400> 36

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Asn | Phe | Leu | Leu | Pro | Thr | Thr | Cys | Arg | Gly | Ile | Leu | Met | Ala | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Ser | Thr | Pro | Ser | Leu | Pro | Asp | Ser | Ser | Ile | Val | Ser | Gln | Lys | Thr |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Pro | Pro | Val | Pro | Asp | Pro | Asp | Ser | Ser | Pro | Asp | His | Ile | Pro | Thr | Ile |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Pro | Thr | Gln | Ala | Pro | Phe | Lys | Pro | Gln | Arg | Lys | Lys | Glu | Thr | Pro | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ser | Ile | Val | Asn | Ala | Ile | Ala | Phe | Ala | Ile | Leu | Ala | Phe | Leu | Ser | Cys |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Gly | Gly | Val | Phe | Ala | Ile | Cys | Leu | Gly | Cys | Ser | Leu | Glu | Ile | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Met | Pro | Leu | Phe | Ile | Leu | Thr | Ala | Val | Phe | Ile | Ala | Phe | Thr | Leu | Leu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Tyr | Phe | Ile | His | Tyr | Leu | Glu | Lys | Pro | Lys | Ile | Pro | Glu | Pro | Leu | Pro |
| | | | 115 | | | | 120 | | | | | 125 | | | |
| Thr | Pro | Pro | Pro | Ser | Pro | Thr | Leu | Arg | Ala | Pro | Thr | Leu | Thr | Pro | Glu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ile | Pro | Ala | Pro | Ala | Pro | Gly | Ile | Pro | Leu | Pro | Pro | Thr | Leu | Pro | Lys |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Val | Asp | Arg | Thr | Lys | Leu | Thr | Cys | Asn | Pro | Asp | Ile | His | Tyr | Pro | Ser |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Thr | Tyr | Asp | Pro | Lys | Ala | Cys | Phe | Ser | Leu | Leu | Lys | Gln | Leu | Phe | Ser |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Leu | Asp | Pro | Glu | Thr | Arg | Pro | Glu | Asp | Arg | Lys | Tyr | Ser | Asn | Lys | Leu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ala | Ser | Ile | Leu | Leu | Arg | Ser | Lys | Glu | Lys | Ser | Gly | Phe | Arg | Phe | His |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Cys | Phe | Lys | Gly | His | Phe | Ser | His | Asp | Lys | Ile | Leu | Asn | Lys | Lys | Ser |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Gly | Ala | Val | Val | Ile | Ser | Ser | His | Ser | Ser | Met | Asp | Phe | Ser | Thr | Thr |
| | | | | 245 | | | | | | 250 | | | | 255 | |
| Leu | Gly | Arg | Ala | Phe | Ala | Val | Thr | Thr | Cys | Leu | Gln | Arg | Ser | Cys | Trp |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Glu | Lys | Ile | Lys | Asn | Asn | Ile | Pro | Thr | Pro | Glu | Lys | His | Leu | Pro | Ile |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Gly | Ser | Cys | Val | Ser | Gly | Pro | Trp | Asp | Val | Glu | Glu | Gly | Ala | Gln | Leu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Tyr | Thr | Ser | His | Leu | Ile | Val | Ile | Asn | Pro | Pro | Thr | Leu | Glu | Thr | Leu |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Ile | Lys | Glu | Lys | Met | Arg | Arg | Ala | Ile | Thr | Leu | Lys | Asp | Phe | Ser | Met |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Lys | Glu | Ala | Phe | Thr | Asn | Leu | Val | Leu | Ala | Tyr | Leu | Gln | Cys | Phe | Asp |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ile | Cys | Ile | Glu | His | Asn | Leu | Glu | Ser | Val | Gln | Leu | Glu | Val | Phe | Gly |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Leu | Asn | Asn | Leu | Ser | Ala | Asp | Gln | Glu | Glu | Phe | Thr | Thr | Trp | Glu | Ser |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Cys | Cys | His | Leu | Ala | Leu | Glu | Ser | Val | Arg | Ile | Leu | Leu | Ala | Ser | |
| 385 | | | | | 390 | | | | 395 | | | | | | 400 |
| Lys | Glu | Glu | Tyr | Ala | Leu | Ser | Asn | Val | Ser | Val | Asn | Ser | Ile | Ser | Gln |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Val | Pro | Leu | Gln | Thr | Ala | Cys | Arg | Ala | Leu | Phe | Leu | Asn | | | |
| | | | 420 | | | | | 425 | | | | | | | |

<210> 37

<211> 526

<212> PRT

<213> Chlamydia pneumoniae

<400> 37

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ala | Arg | Thr | Thr | Leu | Glu | Glu | Asp | Ala | Gly | Ser | Ser | Leu | Lys | Pro | Leu | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| Pro | Lys | Thr | Phe | Pro | Cys | Ala | Thr | Ala | Leu | Tyr | Ile | Thr | His | Arg | Arg | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Glu | Arg | Lys | Ser | Glu | His | Gln | Met | Trp | Asn | Arg | Cys | Gln | Val | Phe | Ser | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Ser | Phe | Phe | Phe | Arg | Tyr | Pro | Ile | Ser | Ser | Trp | Leu | Ile | Arg | Leu | Arg | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Ala | Ser | Cys | Glu | Cys | Phe | Gln | Gln | Arg | His | Pro | Ile | Phe | Leu | Cys | Gly | |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | | |
| Leu | Tyr | Trp | Leu | Ala | Gly | Ile | Thr | Ser | Arg | Gly | His | Pro | Glu | Cys | Ser | |
| | | | | 85 | | | | 90 | | | | | | 95 | | |
| Ala | Leu | Ile | Leu | Ile | Phe | Leu | Gly | Met | Phe | Leu | Pro | Arg | Asn | Pro | Lys | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Gln | Trp | Leu | Pro | Leu | Ala | Ser | Ala | Trp | Ile | Ile | Ser | Leu | Met | Leu | Thr | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Pro | Ala | Pro | Phe | Leu | His | Asp | Gly | Pro | Ile | Ser | Gly | Thr | Phe | Val | Ile | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| His | His | Ala | Gly | Gly | Gln | Gly | Thr | Tyr | Tyr | Gly | Glu | Ala | Leu | Cys | Ile | |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | | |
| Gln | Thr | Pro | Cys | Gly | Lys | Arg | Ala | His | His | Leu | Ser | Cys | Gln | Ile | Leu | |
| | | | | 165 | | | | 170 | | | | | 175 | | | |
| Ser | Glu | Ser | Arg | Leu | Glu | Leu | Lys | Lys | Val | Tyr | Glu | Leu | Glu | Gly | Thr | |
| | | 180 | | | | | | 185 | | | | 190 | | | | |
| Leu | His | His | Thr | Ser | Gln | Ile | Val | Phe | Lys | Ser | Asn | Ala | Cys | Tyr | Lys | |
| | 195 | | | | | | 200 | | | | 205 | | | | | |
| Glu | Ile | Pro | Arg | Ser | Arg | Phe | Tyr | Ile | Met | Lys | Glu | Lys | Cys | Arg | Glu | |
| | 210 | | | | | 215 | | | | 220 | | | | | | |
| Ser | Ser | Cys | His | Phe | Leu | Asn | His | Arg | Phe | Pro | Ser | Ser | Glu | Val | Gly | |
| 225 | | | | | 230 | | | | 235 | | | | | 240 | | |
| Pro | Phe | Ala | Ser | Ser | Leu | Leu | Leu | Gly | Thr | Pro | Leu | Pro | Gln | Asn | Leu | |
| | | | | 245 | | | | 250 | | | | | 255 | | | |
| Arg | Asp | Leu | Phe | Arg | Gln | Lys | Gly | Leu | Ser | His | Leu | Phe | Ala | Ile | Ser | |
| | | 260 | | | | | 265 | | | | | 270 | | | | |
| Gly | Trp | His | Phe | Ser | Leu | Cys | Ala | Thr | Thr | Leu | Trp | Met | Leu | Cys | Ala | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Leu | Leu | Pro | Leu | Lys | Ile | Lys | Lys | Ile | Leu | Ser | Phe | Ile | Val | Leu | Thr | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Ser | Leu | Ala | Cys | Ile | Phe | Pro | Met | Ser | Leu | Ser | Val | Trp | Arg | Ser | Trp | |
| 305 | | | | | 310 | | | | 315 | | | | | 320 | | |
| Ile | Ser | Val | Thr | Leu | Leu | Cys | Phe | Ser | Trp | Cys | Phe | Ser | Gly | Ser | Cys | |
| | | | | 325 | | | | 330 | | | | | 335 | | | |
| Ser | Gly | Leu | Asn | Arg | Leu | Gly | Ala | Gly | Phe | Ile | Leu | Cys | Ser | Ile | Phe | |
| | | | 340 | | | | | 345 | | | | 350 | | | | |
| Phe | Ser | Pro | Phe | Ser | Pro | Thr | Phe | Val | Leu | Ser | Phe | Leu | Ala | Thr | Leu | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| Gly | Ile | Leu | Leu | Phe | Phe | Pro | Lys | Ile | Phe | Ser | Phe | Leu | Tyr | Thr | Pro | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Trp | Thr | Gln | Phe | Leu | Ser | Pro | Phe | Trp | Leu | Tyr | Pro | Ile | Arg | Tyr | Leu | |
| 385 | | | | | 390 | | | | 395 | | | | | 400 | | |
| Ala | Met | Thr | Leu | Ala | Ile | Ser | Leu | Ser | Ala | Gln | Leu | Phe | Ile | Val | Leu | |
| | | | | 405 | | | | 410 | | | | | 415 | | | |
| Pro | Ile | Met | Gln | Tyr | Phe | Gly | Ser | Leu | Pro | Leu | Glu | Gly | Leu | Leu | Tyr | |
| | | | 420 | | | | | 425 | | | | 430 | | | | |
| Asn | Leu | Ile | Val | Pro | Phe | Thr | Ile | Leu | Pro | Ile | Ile | Val | Phe | Leu | Ile | |
| | 435 | | | | | | 440 | | | | | 445 | | | | |
| Ala | Thr | Ile | Ile | Leu | Pro | Cys | Ser | Pro | Ile | Thr | Glu | Ala | Leu | Ile | | |
| | 450 | | | | | 455 | | | | 460 | | | | | | |
| Gln | Gly | Phe | Leu | Ser | His | Pro | Trp | Leu | His | Asn | Pro | Asn | Ile | Leu | Lys | |
| 465 | | | | | 470 | | | | 475 | | | | | 480 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Leu | Ser | Phe | Ala | Pro | Val | Pro | Pro | Trp | Met | Leu | Thr | Leu | Ala | Ser |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Leu | Ile | Leu | Phe | Ile | Gly | Ile | Leu | Arg | Thr | Asn | Val | Ser | Pro | Tyr | |
| | | | 500 | | | | 505 | | | | | 510 | | | |
| Ala | Ser | Ile | Ser | Ala | Thr | Ser | Tyr | Arg | Phe | Ile | Glu | Thr | Leu | | |
| | | 515 | | | | | 520 | | | | | 525 | | | |

<210> 38
 <211> 276
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 38 | | | | | | | | | | | | | | | |
| Ala | Lys | Ser | Leu | Trp | Asp | Ser | Glu | Arg | Lys | Lys | Met | Lys | Lys | Pro | Asp |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Asn | Asp | Ser | Thr | Phe | Asp | Val | Arg | Ser | Phe | Phe | Pro | Phe | Asp | Val | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Cys | Ile | Glu | Gln | Leu | Arg | Lys | Glu | Met | Ser | Trp | Glu | Val | Val | Ser | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Lys | Ile | Pro | Arg | Leu | Pro | Arg | Gly | Trp | Tyr | Glu | Leu | Met | Gly | Leu | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Lys | Glu | Asp | Arg | Ile | Asp | Phe | Cys | Leu | Asp | Phe | Trp | Cys | Ser | Val | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Ile | Glu | His | Lys | Glu | Ser | Pro | Ser | Ile | Cys | Arg | Phe | Phe | Ser | Leu |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Leu | Glu | Thr | Ile | Glu | Val | Tyr | Ile | Tyr | Arg | Leu | Glu | Lys | Glu | Pro | Tyr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gln | Leu | Lys | Met | Phe | Tyr | Val | Phe | Arg | Asp | Gly | Arg | Cys | Gly | Phe | Gln |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Glu | Pro | Pro | Leu | Leu | Asp | Phe | Leu | Gly | His | His | Arg | Leu | Pro | Pro |
| | | 130 | | | | 135 | | | | | 140 | | | | |
| Leu | Gly | Asp | Arg | His | Tyr | Glu | Lys | Phe | Phe | Ser | Ile | His | Asn | Gly | Phe |
| 145 | | | | 150 | | | | | | 155 | | | | | 160 |
| Gly | Lys | Trp | Glu | Asp | Glu | Gly | Ile | Phe | Pro | Met | Arg | Ser | Leu | Ala | Lys |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Val | Gln | Gln | Lys | Leu | Arg | Gln | Gln | Leu | Val | Val | Met | Asn | Lys | Met | Gln |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ala | Glu | Asp | Asn | Cys | Tyr | Ser | Leu | Gly | Ile | Phe | Pro | Phe | Tyr | Gly | Tyr |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Glu | Glu | Pro | Phe | Ala | Tyr | Gln | Ser | Phe | Phe | Phe | Asp | Pro | Glu | Ile | Arg |
| | | 210 | | | | 215 | | | | | 220 | | | | |
| Arg | Asp | Leu | Pro | Ser | Pro | Asn | Val | Leu | Leu | Asn | Glu | Glu | Ser | Leu | Glu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| His | Arg | Ser | Leu | Glu | Thr | Ile | Glu | Leu | Leu | His | Leu | Ser | Lys | Ser | Tyr |
| | | | 245 | | | | | 250 | | | | | | 255 | |
| Tyr | Pro | Ser | Phe | Leu | Ser | Trp | Leu | Glu | Asn | Tyr | Leu | His | Ser | Glu | Glu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Val | Tyr | Asn | Glu | | | | | | | | | | | | |
| | | | 275 | | | | | | | | | | | | |

<210> 39
 <211> 138
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 39 | | | | | | | | | | | | | | | |
| Lys | Leu | Leu | Ser | Cys | Cys | Ile | Cys | Leu | Arg | Ala | Ile | Ile | Leu | Leu | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Arg | Gly | Trp | Arg | Thr | Ile | Tyr | Ile | Val | Arg | Arg | Cys | Ile | Met | Asn |
| | | | 20 | | | | | 25 | | | | | 30 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Pro | Thr | Arg | Thr | Tyr | Leu | Glu | Ser | Glu | Lys | Asp | Thr | Gln | Asp | Gln |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ile | Glu | Glu | Leu | Gln | Ala | Thr | Cys | Ile | Val | Lys | Asn | Ala | Ala | Gly | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| His | Val | Arg | Pro | Ala | Gly | Val | Ile | Val | Arg | Leu | Phe | Asp | Gly | Glu | Pro |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Cys | Asp | Val | His | Phe | Thr | Tyr | Ala | Gly | Lys | Thr | Ile | Asn | Ala | Lys | Ser |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ile | Met | Ser | Ile | Leu | Met | Leu | Gly | Ala | Pro | Gln | Gly | Gly | Glu | Ile | Leu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Thr | Ile | Arg | Ser | Lys | Glu | Ala | His | Arg | Ile | Leu | Gln | Lys | Ile | Gln |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Asp | Ala | Phe | Ser | Ser | Gly | Phe | Gly | Glu | Leu | | | | | | |
| | 130 | | | | | | 135 | | | | | | | | |

<210> 40

<211> 571

<212> PRT

<213> Chlamydia pneumoniae

<400> 40

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Thr | Gln | Ser | Ser | Thr | Gly | Asn | Glu | Glu | Trp | Arg | Ile | Ala | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Thr | Ser | Ile | Val | Ser | Gly | Met | Ala | Leu | Gly | Lys | Val | Phe | Phe | Leu | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Thr | Ser | Pro | Leu | His | Val | Arg | Glu | Leu | Thr | Leu | Pro | Gln | Glu | Glu | Val |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Glu | His | Glu | Ile | His | Arg | Tyr | Tyr | Lys | Ala | Leu | Asn | Arg | Ser | Lys | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Asp | Ile | Val | Ala | Leu | Glu | Gln | Glu | Val | Thr | Gly | Gln | Gln | Gly | Leu | Gln |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Glu | Val | Ser | Ser | Ile | Leu | Gln | Ala | His | Leu | Glu | Ile | Met | Lys | Asp | Pro |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Leu | Leu | Thr | Glu | Glu | Val | Val | Asn | Thr | Ile | Arg | Lys | Asp | Arg | Lys | Asn |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ala | Glu | Tyr | Val | Phe | Ser | Ser | Val | Met | Gly | Lys | Ile | Glu | Glu | Ser | Leu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Thr | Ala | Val | Arg | Gly | Met | Pro | Ser | Val | Val | Asp | Arg | Val | Gln | Asp | Ile |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| His | Asp | Ile | Ser | Asn | Arg | Val | Ile | Gly | His | Leu | Cys | Cys | Gln | His | Lys |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Ser | Leu | Gly | Glu | Ser | Asp | Gln | Asn | Leu | Ile | Ile | Phe | Ser | Glu | Glu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Thr | Pro | Ser | Glu | Val | Ala | Ser | Ala | Asn | Ser | Ala | Tyr | Ile | Arg | Gly |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Phe | Val | Ser | Leu | Val | Gly | Ala | Ala | Thr | Ser | His | Thr | Ala | Ile | Val | Ser |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Arg | Ala | Lys | Ser | Ile | Pro | Tyr | Leu | Ala | Asn | Ile | Ser | Glu | Glu | Leu | Trp |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Asn | Ile | Ala | Lys | Arg | Tyr | Asn | Gly | Lys | Leu | Val | Leu | Ile | Asp | Gly | Tyr |
| 225 | | | | | 230 | | | | | | 235 | | | | 240 |
| Arg | Gly | Glu | Leu | Ile | Phe | Asn | Pro | Lys | Pro | Ala | Thr | Leu | Gln | Ser | Cys |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Tyr | Lys | Lys | Glu | Leu | Ser | Val | Val | Ala | His | Thr | Ser | Gln | Arg | Leu | Val |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Arg | Lys | Ser | Leu | His | Pro | Ile | Val | Ser | Ser | His | Ala | Gly | Ser | Asp | Lys |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Asp | Val | Glu | Asp | Leu | Leu | Glu | Asn | Phe | Pro | Gln | Thr | Ser | Ile | Gly | Leu |
| | 290 | | | | | | 295 | | | | | 300 | | | |
| Phe | Arg | Ser | Glu | Phe | Leu | Ala | Val | Ile | Leu | Gly | Arg | Leu | Pro | Thr | Leu |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Arg | Glu | Gln | Val | Asp | Leu | Tyr | Glu | Lys | Leu | Ala | Arg | Phe | Pro | Gly | Asp | |
| | | | | 325 | | | | | 330 | | | | | 335 | | |
| Ser | Pro | Ser | Val | Leu | Arg | Leu | Phe | Asp | Phe | Gly | Glu | Asp | Lys | Pro | Cys | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| Pro | Gly | Ile | Lys | Asn | Lys | Lys | Glu | Arg | Ser | Ile | Arg | Trp | Leu | Leu | Asp | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| Tyr | Ser | Val | Ile | Leu | Glu | Asp | Gln | Leu | Gln | Ala | Ile | Ala | Lys | Ala | Ser | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Leu | Gln | Gly | Ser | Ile | Lys | Val | Leu | Ile | Pro | Gly | Val | Ser | Asp | Val | Ser | |
| 385 | | | | | 390 | | | | | 395 | | | | 400 | | |
| Glu | Ile | Ile | Glu | Val | Lys | Lys | Lys | Trp | Glu | Thr | Ile | Arg | Thr | Arg | Phe | |
| | | | | 405 | | | | | 410 | | | | | 415 | | |
| Pro | Lys | Gly | His | Lys | Val | Ser | Trp | Gly | Thr | Met | Ile | Glu | Phe | Pro | Ser | |
| | | | 420 | | | | | 425 | | | | | 430 | | | |
| Ala | Val | Trp | Met | Ile | Glu | Glu | Ile | Leu | Pro | Glu | Cys | Asp | Phe | Leu | Ser | |
| | 435 | | | | | | 440 | | | | | 445 | | | | |
| Ile | Gly | Thr | Asn | Asp | Leu | Val | Gln | Tyr | Thr | Leu | Gly | Ile | Ser | Arg | Glu | |
| | 450 | | | | 455 | | | | | | 460 | | | | | |
| Ser | Ala | Leu | Pro | Lys | His | Leu | Asn | Val | Thr | Leu | Pro | Pro | Ala | Val | Ile | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | |
| Arg | Met | Ile | His | His | Val | Leu | Gln | Ala | Ala | Lys | Gln | Asn | Gln | Val | Pro | |
| | | | | 485 | | | | | 490 | | | | | 495 | | |
| Val | Ser | Ile | Cys | Gly | Glu | Ala | Ala | Gly | Gln | Leu | Ser | Leu | Thr | Pro | Leu | |
| | | | 500 | | | | | 505 | | | | | 510 | | | |
| Phe | Ile | Gly | Leu | Gly | Val | Gln | Glu | Leu | Ser | Val | Ala | Met | Pro | Val | Ile | |
| | 515 | | | | | 520 | | | | | 525 | | | | | |
| Asn | Arg | Leu | Arg | Asn | His | Ile | Ala | Leu | Leu | Glu | Leu | Asn | Ser | Cys | Leu | |
| | 530 | | | | | 535 | | | | | 540 | | | | | |
| Glu | Ile | Thr | Glu | Ala | Leu | Leu | Gln | Ala | Lys | Thr | Cys | Ser | Glu | Val | Glu | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | |
| Glu | Leu | Leu | Asn | Arg | Asn | Asn | Lys | Ile | Thr | Ser | | | | | | |
| | | | 565 | | | | | | 570 | | | | | | | |

<210> 41
 <211> 98
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| Ile | Ser | Met | Gly | Ser | Gly | Tyr | Ala | Lys | Lys | Lys | Lys | Glu | Ala | Lys | Ile | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| Met | Glu | Gln | Gln | Phe | Leu | Glu | Met | Glu | Ala | Ser | Leu | Leu | Glu | Lys | Arg | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Tyr | Glu | Gly | Gln | Ala | Gly | Asn | Gly | Leu | Val | Ser | Val | Val | Ile | Asn | Gly | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Lys | Cys | Asp | Leu | Ile | Ser | Val | Lys | Val | Gln | Pro | Thr | Cys | Leu | Asp | Pro | |
| | 50 | | | | | 55 | | | | 60 | | | | | | |
| Glu | Asp | Pro | Glu | Val | Ile | Glu | Asp | Leu | Phe | Arg | Ala | Ala | Phe | Lys | Leu | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Ala | Lys | Glu | Gln | Met | Asp | Gln | Glu | Met | Ser | Leu | Met | Arg | Ser | Thr | Met | |
| | | | 85 | | | | | | 90 | | | | | 95 | | |
| Pro | Phe | | | | | | | | | | | | | | | |

<210> 42
 <211> 452
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 42
 Ala Phe Tyr Thr His Ser Leu Gly Tyr Thr Met Thr Leu Gln Pro Tyr
 1 5 10 15
 Gln Ala Ser Ser Arg Lys Tyr Arg Pro Gln Ile Phe Arg Glu Ile Leu
 20 25 30
 Gly Gln Ser Ser Val Val Ala Val Leu Lys Asn Ala Leu Val Phe Asn
 35 40 45
 Arg Ala Ala His Ala Tyr Leu Phe Ser Gly Ile Arg Gly Thr Gly Lys
 50 55 60
 Thr Thr Leu Ala Arg Ile Leu Ala Lys Ala Leu Asn Cys Val His Leu
 65 70 75 80
 Ser Glu Asp Gly Glu Pro Cys Asn Gln Cys Phe Ser Cys Lys Glu Ile
 85 90 95
 Ala Ser Gly Ser Ser Leu Asp Val Leu Glu Ile Asp Gly Ala Ser His
 100 105 110
 Arg Gly Ile Glu Asp Ile Arg Gln Ile Asn Glu Thr Val Leu Phe Thr
 115 120 125
 Pro Val Lys Ala Lys Phe Lys Ile Tyr Ile Ile Asp Glu Val His Met
 130 135 140
 Leu Thr Lys Glu Ala Phe Asn Ala Leu Leu Lys Thr Leu Glu Glu Pro
 145 150 155 160
 Pro Gln His Val Lys Phe Phe Phe Ala Thr Thr Glu Ile His Lys Ile
 165 170 175
 Pro Gly Thr Ile Leu Ser Arg Cys Gln Lys Met His Leu Gln Arg Ile
 180 185 190
 Pro Glu Lys Thr Ile Leu Glu Lys Leu Ser Leu Met Ala Gln Asp Asp
 195 200 205
 His Ile Glu Ala Ser Gln Glu Ala Leu Ala Pro Ile Ala Arg Ala Ala
 210 215 220
 Gln Gly Ser Leu Arg Asp Ala Glu Ser Leu Tyr Asp Tyr Val Ile Ser
 225 230 235 240
 Leu Phe Pro Lys Ser Leu Ser Pro Asp Thr Val Ala Gln Ala Leu Gly
 245 250 255
 Phe Ala Ser Gln Asp Ser Leu Arg Thr Leu Asp Asn Ala Ile Leu Gln
 260 265 270
 Arg Asp Tyr Ala Thr Ala Leu Gly Ile Val Thr Asp Phe Leu Asn Ser
 275 280 285
 Gly Val Ala Pro Val Thr Phe Leu His Asp Leu Thr Leu Phe Tyr Arg
 290 295 300
 Asn Leu Leu Leu Thr Asn Ser Thr Thr Ser Lys Phe Ser Ser Gln Tyr
 305 310 315 320
 Lys Thr Glu Gln Leu Leu Glu Ile Ile Asp Phe Leu Gly Glu Ser Ala
 325 330 335
 Lys His Leu Gln Asn Thr Ile Phe Glu Gln Thr Phe Leu Glu Thr Val
 340 345 350
 Ile Ile His Ile Ile Arg Ile Tyr Gln Arg Pro Val Leu Ser Glu Leu
 355 360 365
 Ile Ser Ser Ile Lys Ser Arg Gln Phe Glu Gly Leu Arg Asn Ile Lys
 370 375 380
 Glu Pro Thr Leu Thr Gln Gln Val Ser Ala Pro Gln Pro Gln Pro Thr
 385 390 395 400
 Tyr Lys Glu Gln Ser Phe Leu Glu Lys Lys Asn Gln Pro Ala Ala Glu
 405 410 415
 Gly Lys Ile Ile Ser Val Glu Val Lys Ser Ser Ala Ser Ile Lys Ser
 420 425 430
 Ala Ala Val Asp Thr Leu Leu Gln Phe Ala Val Val Glu Phe Ser Gly
 435 440 445
 Ile Leu Arg Gln
 450

<210> 43
 <211> 485
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 43
 Cys Lys Tyr Leu Tyr His His Ser Tyr Pro Pro Pro Gln His Ser Val
 1 5 10 15
 Gly Ser Ile Ser Ser Arg Tyr Lys Leu Arg Val Leu Ala Ile Thr Phe
 20 25 30
 Leu Val Leu Gly Val Leu Leu Leu Ile Ser Gly Ala Leu Phe Leu Thr
 35 40 45
 Leu Gly Ile Pro Gly Leu Thr Ala Gly Val Ser Phe Gly Leu Gly Ile
 50 55 60
 Gly Leu Ser Ala Leu Gly Gly Val Leu Val Val Ser Gly Leu Leu Cys
 65 70 75 80
 Leu Leu Val Lys Arg Glu Val Ser Lys Val Cys Pro Glu Glu Ile Pro
 85 90 95
 Ala Val Gln Pro Glu Glu Thr Pro Glu Gly Val Pro Val Thr Pro Phe
 100 105 110
 Glu Lys Pro Ala Leu Asp Glu Ala Gln Lys Glu Gln Lys Thr Gln Lys
 115 120 125
 Ile Leu Asp Gln Leu Pro Gln Glu Leu Asp Gln Leu Asp Arg Tyr Ile
 130 135 140
 Gln Glu Ala Phe Ala Cys Leu Gly Pro Leu Lys Asp Leu Lys Tyr Glu
 145 150 155 160
 Asp Gln Gly Phe Leu Gln Asp Val Lys Glu Glu Phe Gln Val Phe Asp
 165 170 175
 Phe Val Gln Lys Asp Met Ile Ala Glu Phe Val Glu Leu Gln Gln Ile
 180 185 190
 Leu Cys Gln Glu Gly Arg Leu Leu Glu Phe Val Ile Asn Gln Thr Arg
 195 200 205
 Tyr Ile Gly Arg Asp Leu Phe Lys Arg Glu Asp Ser Leu Tyr Lys Leu
 210 215 220
 Trp Glu Trp Leu Gly Tyr Leu Pro Ser Gly Asp Val Arg Gly Glu Arg
 225 230 235 240
 Leu Lys Lys Ser Ala Arg Glu Val Val Asp Arg Phe Met Arg Thr Thr
 245 250 255
 Cys Asn Ile Arg Lys Ile Ala Met Thr Phe Asp Arg His Val Tyr Ser
 260 265 270
 Val Ala Lys Thr Ala Phe Glu Lys Ala Phe Gly Ala Leu Glu Thr Cys
 275 280 285
 Val Tyr Glu Ser Met Arg Glu Ser Tyr Arg Glu Ala Phe Cys Glu Tyr
 290 295 300
 Glu Lys Ala Lys Leu Leu Gly Asp Glu Glu Lys Ser Ala His Ala Glu
 305 310 315 320
 Gln Arg Phe Gln Asp Ile Lys Asn Arg Trp Glu Asp Val Lys Asp Ala
 325 330 335
 Phe Phe Trp Val Lys Glu Asp Gly Lys Ile Glu Ile Asp Asp Ala Ile
 340 345 350
 Gly Asn Ser Cys Lys Trp Ser Glu Arg Tyr Glu Glu His Arg Ile Thr
 355 360 365
 Arg Ala Arg Trp Tyr Lys Val Ala Glu His Gln Leu Phe Asn Ala Thr
 370 375 380
 Met Arg Val Lys Asp Ser Leu Arg Glu His Asn Glu Ala Arg Val Ala
 385 390 395 400
 Phe Glu Lys Glu Arg Ser Lys Glu Asn Gln Arg Gln Val Gln Lys Lys
 405 410 415
 Lys Glu Lys Arg Leu Arg Asp Leu Lys Glu Leu His Asp Gln Glu Leu
 420 425 430

Pro Arg Ala Gln Glu Arg Leu Arg Glu Leu Gln Ala Leu Tyr Pro Glu
 435 440 445
 Ile Ala Val Ser Val Val Glu Ala Arg Arg Glu Val Ala Ser Asp Leu
 450 455 460
 Glu Lys Ala His Glu Ser Ile Asp Lys His Tyr Gln Ser Cys Val Arg
 465 470 475 480
 Glu Gln Glu Leu Tyr
 485

<210> 44
 <211> 279
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 44
 Glu Glu Glu Glu Lys Gln Glu Ala Glu Phe Arg Glu Asn Gly Thr Lys
 1 5 10 15
 Ile Arg Ser Met Glu Glu Val Ser Glu Tyr Leu Gln Gln Val Glu Asn
 20 25 30
 Gln Leu Glu Ser Cys Ser Lys Arg Leu Thr Lys Met Glu Thr Phe Ala
 35 40 45
 Leu Gly Val Arg Leu Glu Ala Lys Glu Glu Ile Glu Ser Ile Ile Leu
 50 55 60
 Ser Asp Val Val Asn Arg Phe Glu Val Leu Cys Arg Asp Ile Glu Asp
 65 70 75 80
 Met Leu Ser Arg Val Glu Glu Ile Glu Arg Met Leu Arg Met Ala Glu
 85 90 95
 Leu Pro Leu Leu Pro Ile Lys Glu Ala Leu Thr Lys Ala Phe Val Gln
 100 105 110
 His Asn Ser Cys Lys Glu Lys Leu Thr Lys Val Glu Pro Tyr Phe Lys
 115 120 125
 Glu Ser Pro Ala Tyr Leu Thr Ser Glu Glu Arg Leu Gln Ser Leu Asn
 130 135 140
 Gln Thr Leu Gln Arg Ala Tyr Lys Glu Ser Gln Lys Val Ser Gly Leu
 145 150 155 160
 Glu Ser Glu Val Arg Ala Cys Arg Glu Gln Leu Lys Asp Gln Val Arg
 165 170 175
 Gln Phe Glu Thr Gln Gly Val Ser Leu Ile Lys Glu Glu Ile Leu Phe
 180 185 190
 Val Thr Ser Thr Phe Arg Thr Lys Phe Ser Tyr His Ser Phe Arg Leu
 195 200 205
 His Val Pro Cys Met Arg Leu Tyr Glu Glu Tyr Tyr Asp Asp Ile Asp
 210 215 220
 Leu Glu Arg Thr Arg Ala Arg Trp Met Ala Met Ser Glu Arg Tyr Arg
 225 230 235 240
 Asp Ala Phe Gln Ala Phe Gln Glu Met Leu Lys Glu Gly Leu Val Glu
 245 250 255
 Glu Ala Gln Ala Leu Arg Glu Thr Glu Tyr Trp Leu Tyr Arg Glu Glu
 260 265 270
 Arg Lys Ser Lys Lys Lys His
 275

<210> 45
 <211> 647
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 45
 His His Arg Phe Ile Met Gln Val Pro Leu Ser Pro Gln Leu Pro Pro
 1 5 10 15

381

Lys Val Arg Ser Met Glu Glu Val Ala Glu His Leu Gln Ile Leu Glu
 500 505 510
 Asn Leu Leu Glu Asp Cys Tyr Lys Arg Leu Ser Lys Ala Glu Thr Phe
 515 520 525
 Ala Leu Gly Val Glu Arg Glu Ala Thr Glu Glu Ile Glu Tyr Thr Ile
 530 535 540
 Leu Ser Asp Ala Ala Asn Arg Leu Lys Val Leu Cys Glu Asp Ile Glu
 545 550 555 560
 Asp Thr Leu Pro Arg Val Glu Glu Ile Glu Met Met Leu Arg Met Ala
 565 570 575
 Glu Arg Pro Leu His Pro Ile Lys Gln Ala Phe Thr Lys Ala Phe Val
 580 585 590
 Gln Tyr Asn Arg Cys Lys Glu Arg Leu Ala Lys Val Glu Pro Tyr Tyr
 595 600 605
 Lys Glu Ser Pro Ala Tyr Val Asn Ser Glu Glu Arg Leu Gln Ser Leu
 610 615 620
 Asp Gln Ala Ser Gln Cys Ile Gln Arg Val Pro Lys Gly Phe Lys Phe
 625 630 635 640
 Arg Asn Gly Ser Met Tyr Ile
 645

<210> 46
 <211> 167
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 46
 Ile Ala Lys Ser Asp Cys Arg Val Trp Ile Arg Leu His Ser Ala Tyr
 1 5 10 15
 Lys Glu Ser Gln Lys Val Ser Ser Leu Glu Thr Glu Ala Cys Thr Tyr
 20 25 30
 Arg Glu Tyr Leu Arg Glu Gln Val Gln Gln Phe Glu Thr Gln Gly Val
 35 40 45
 Ser Leu Ile Lys Glu Glu Leu Phe Leu Ser Ser Thr Leu Lys Ser
 50 55 60
 Lys Leu Ser Tyr Asp Pro Leu Ile Ala Asn Ile Pro Cys Met Lys Phe
 65 70 75 80
 Tyr Tyr Gln Tyr Tyr Asp Asp Ile Asp Lys Ala Arg Ala Gln Ser Arg
 85 90 95
 Trp Leu Glu Lys Ser Glu Arg Tyr Arg Asn Ala Lys Arg Arg Phe Gln
 100 105 110
 Glu Ile Val Lys Lys Gly Leu Phe Lys Glu Ala Lys Pro Leu Lys Lys
 115 120 125
 Glu Glu Tyr Arg Leu Leu Gln Glu Glu Arg Ser Asn Lys Glu Lys Arg
 130 135 140
 Leu Ile Tyr Asn Lys Met Ala Val Ala Arg Gln Arg Val Gln Glu Phe
 145 150 155 160
 Glu Ser Met Glu Ile Pro Glu
 165

<210> 47
 <211> 610
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 47
 Cys Lys Tyr Thr Tyr His Pro Pro Gln Leu Pro Pro Asp His Ser Val
 1 5 10 15
 Gly Ala Thr Ser Trp Gln Pro Lys Leu Arg Ile Leu Thr Ile Thr Phe
 20 25 30

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Val | Leu | Gly | Val | Leu | Leu | Leu | Ile | Ser | Gly | Ala | Leu | Phe | Leu | Thr | 35 | 40 | 45 |
| Leu | Gly | Val | Pro | Gly | Leu | Ala | Ala | Gly | Leu | Ser | Phe | Gly | Leu | Gly | Ile | 50 | 55 | 60 |
| Gly | Leu | Ser | Ala | Leu | Gly | Gly | Val | Leu | Val | Val | Ser | Gly | Leu | Leu | Phe | 65 | 70 | 75 |
| Phe | Leu | Ile | Arg | Arg | Gly | Val | Ser | Lys | Val | Arg | Pro | Glu | Glu | Ile | Pro | 85 | 90 | 95 |
| Val | Thr | Pro | Ser | His | Glu | Ala | Gln | Lys | Ile | Leu | Cys | Gln | Leu | Pro | Gln | 100 | 105 | 110 |
| Glu | Leu | Asp | Gln | Leu | Asp | Thr | Ser | Ile | Gln | Glu | Val | Val | Ser | Cys | Leu | 115 | 120 | 125 |
| Gly | Lys | Leu | Lys | Asp | Leu | Lys | Tyr | Glu | Asp | Gln | Gly | Leu | Leu | Thr | Glu | 130 | 135 | 140 |
| Val | Gln | Glu | Lys | Leu | Arg | Val | Phe | Asp | Phe | Val | Arg | Lys | Asp | Met | Val | 145 | 150 | 155 |
| Thr | Glu | Phe | Leu | Glu | Leu | Gln | Gln | Val | Val | Ala | Gln | Glu | Gly | Gln | Phe | 165 | 170 | 175 |
| Leu | Asp | Tyr | Leu | Ile | Asn | Gln | Val | Gln | Ser | Ile | Ser | His | Lys | Leu | Phe | 180 | 185 | 190 |
| Val | Pro | Asp | Val | Asn | Ile | Gly | Ala | His | Leu | Ala | Glu | Leu | Cys | Gly | Tyr | 195 | 200 | 205 |
| Leu | Pro | Ser | Gly | Asp | Val | Arg | Val | Glu | Arg | Leu | Lys | Arg | Ser | Ala | Arg | 210 | 215 | 220 |
| Gln | Val | Val | Asp | Arg | Phe | Met | Arg | Val | Thr | Cys | Asp | Thr | Arg | Lys | Val | 225 | 230 | 235 |
| Ala | Met | Ala | Phe | Asp | Glu | Asn | Ala | Cys | Gly | Val | Ala | Lys | Asn | Ala | Phe | 245 | 250 | 255 |
| Asp | Lys | Ala | Phe | Gly | Ala | Leu | Glu | Glu | Cys | Val | Tyr | Lys | Ser | Leu | Thr | 260 | 265 | 270 |
| Glu | Ser | Tyr | Arg | Glu | Ala | Phe | Tyr | Glu | Tyr | Glu | Lys | Ala | Lys | Ile | Leu | 275 | 280 | 285 |
| Arg | Asn | Glu | Asp | Val | Glu | Trp | Leu | Gln | Asp | Lys | Asn | Lys | Ser | Ala | Arg | 290 | 295 | 300 |
| Ala | Glu | Gln | Arg | Phe | Arg | Glu | Val | Lys | Asp | Arg | Trp | Glu | Asp | Leu | Lys | 305 | 310 | 315 |
| Glu | Thr | Val | Phe | Trp | Val | Lys | Glu | Asn | Gly | Cys | Ile | Asp | Leu | Glu | Val | 325 | 330 | 335 |
| Leu | Thr | Ala | Val | Gly | Gly | Trp | Pro | Asp | Arg | Gly | Pro | Glu | His | Leu | Ile | 340 | 345 | 350 |
| Pro | Glu | Lys | Arg | Arg | Asn | Lys | Val | Met | Ser | His | Lys | Leu | Trp | Glu | Ala | 355 | 360 | 365 |
| Thr | Met | Arg | Met | Lys | Gly | Ala | Glu | Gly | Thr | Tyr | Ser | Val | Ala | Arg | Val | 370 | 375 | 380 |
| Ala | Phe | Glu | Lys | Asp | Gly | Ser | Arg | Lys | Asn | Gln | Lys | Lys | Phe | Gln | Glu | 385 | 390 | 395 |
| Lys | Thr | Lys | Glu | Trp | Leu | Arg | Cys | Leu | Lys | Asp | Leu | His | Asp | Gln | Glu | 405 | 410 | 415 |
| Cys | His | Arg | Ala | Arg | Glu | Arg | Leu | Ala | Glu | Leu | Glu | Ala | Leu | Tyr | Pro | 420 | 425 | 430 |
| Glu | Val | Ser | Val | Ser | Val | Val | Glu | Thr | Glu | Arg | Glu | Thr | Lys | Phe | Lys | 435 | 440 | 445 |
| Leu | Glu | Thr | Ala | Tyr | Gly | Asn | Leu | Glu | Glu | Arg | Tyr | Gln | Ser | Val | Val | 450 | 455 | 460 |
| Arg | Asp | Gln | Glu | Asp | Tyr | Trp | Lys | Glu | Glu | Glu | Asn | Lys | Glu | Ala | Glu | 465 | 470 | 475 |
| Phe | Arg | Glu | Lys | Gly | Thr | Lys | Val | Arg | Ser | Pro | Glu | Glu | Val | Val | Glu | 485 | 490 | 495 |
| Tyr | Leu | Gln | Ile | Leu | Glu | Asn | Leu | Ser | Glu | Asp | Cys | Ser | Lys | Gln | Leu | 500 | 505 | 510 |

Thr Ile Ala Glu Val Val Val Leu Gly Val Glu Leu Glu Ala Thr Ala
 515 520 525
 Glu Phe Glu Tyr Thr Ile Leu Ser Asp Ala Ala Asn Arg Leu Lys Val
 530 535 540
 Leu Cys Glu Asp Ile Glu Asp Ile Leu Pro Arg Val Glu Glu Ile Glu
 545 550 555 560
 Ile Met Leu Arg Ile Ala Glu Leu Pro Phe Leu Pro Ile Lys Gln Ala
 565 570 575
 Phe Thr Lys Ala Phe Leu Gln Tyr Asn Ser Cys Lys Asp Lys Leu Ala
 580 585 590
 Lys Val Glu Pro Tyr Cys Gln Glu Ser Val Asp Tyr Lys Ser Gly Phe
 595 600 605
 Arg Val
 610

<210> 48
 <211> 163
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 48
 Glu Arg Phe Gln Ser Leu Asn Gln Asp Leu Gln Asn Val Tyr Gln Glu
 1 5 10 15
 Cys Gln Lys Ala Thr Gly Leu Glu Ser Glu Val Ser Ala Tyr Arg Asp
 20 25 30
 His Leu Arg Glu Gln Ile Thr Glu Phe Glu Thr Gln Gly Leu Asp Val
 35 40 45
 Ile Lys Glu Glu Leu Leu Phe Val Ser Ser Thr Leu Lys Ser Lys Leu
 50 55 60
 Ser Tyr Asp Pro Leu Ile Ala Asp Ile Pro Cys Met Lys Phe Tyr Glu
 65 70 75 80
 Glu Tyr Tyr Asp Gly Ile Asp Lys Ala Arg Val Gln Ser Arg Trp Leu
 85 90 95
 Glu Lys Ser Glu Arg Tyr Arg Lys Ala Lys Lys Gly Phe Gln Glu Met
 100 105 110
 Leu Lys Glu Gly Leu Phe Lys Glu Asp Gln Ala Leu Lys Lys Ala Glu
 115 120 125
 Tyr Arg Leu Leu Arg Glu Lys Arg Met Asn Lys Glu Lys Leu Leu Ile
 130 135 140
 Cys Asn Lys Ile Glu Ala Ala Gln Gln Arg Val Gln Glu Phe Gly Pro
 145 150 155 160
 Ser Asp Ser

<210> 49
 <211> 72
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 49
 Glu His Phe His Leu Lys Val Thr Ile Val Gly Phe Phe Arg Phe Val
 1 5 10 15
 Leu Glu Gly Ile Leu Thr Met Tyr His Phe Gln Lys Ile Arg Met Thr
 20 25 30
 Leu Thr Thr Gln Gly Phe Val Leu Asn Lys Ser Leu Arg Lys Asp Tyr
 35 40 45
 Glu Leu Trp Phe Val Tyr Gly Ser Cys Pro Glu Ser Lys Val Lys Leu
 50 55 60
 Gln Thr Ser Ser His Lys Trp Leu
 65 70

<210> 50
 <211> 705
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 50
 Met Lys Glu Leu Arg His Glu Ser Tyr Asn Arg Ala Leu His Lys Leu
 1 5 10 15
 Ser His Gln Trp Val Arg Tyr Phe Leu Tyr Thr Phe Val Ser Cys Ser
 20 25 30
 Phe Ile Val Ala Ile Phe Thr Phe Ala Trp Leu Lys Val Leu Tyr Val
 35 40 45
 Pro Glu Tyr Lys Ala Gly Glu Ile Ser Arg Ile Ser Leu Thr Ala Pro
 50 55 60
 Met Asp Phe Ser Leu Ser Trp Ser Ala His Lys Phe Tyr Lys Arg Thr
 65 70 75 80
 Ala His Ile Ser Glu Ala Phe Gly Lys Val Tyr His Leu Thr Leu Ser
 85 90 95
 Pro Gly Ser Leu Leu Ser Lys Glu Gly Asn Ala Asp Glu Asn Thr Asp
 100 105 110
 Tyr Trp Phe Lys Lys Ala Ala Asp Phe Leu Leu Ser Thr Asn Phe Val
 115 120 125
 Asp Ser Ser Thr Gln Lys Cys Leu Lys Asp Leu Cys Ile Tyr Pro Pro
 130 135 140
 Leu Leu Gly Lys Glu Lys Lys Thr Leu Glu Ile Asn Ile Asn Ser Asn
 145 150 155 160
 Lys Gly Asn Val Ile Ala Gln Cys Phe Cys His Leu Lys Ile Phe Leu
 165 170 175
 Ile Gln Glu Asn Cys Pro Gln Pro Cys Phe Asp Ala Ile Met Asp Ile
 180 185 190
 Leu Lys Ile Ala Asn Phe Glu Val Ala Val Asp Lys Glu Met Ser Gly
 195 200 205
 Cys Val Lys Gly Glu Leu Leu Gly Lys Arg Cys Ile Glu Lys Ile Thr
 210 215 220
 Lys Gly Thr Pro Ile Leu Glu Lys Tyr Gln Arg Ile Asp Asp Arg Asp
 225 230 235 240
 Ala Lys Ile Leu Lys Gln Leu Arg Ala Gln Leu Leu Ser Val His Thr
 245 250 255
 Leu Phe Ser Cys Arg Ser Leu Trp Gly Ala Ile Phe Val Val Leu Leu
 260 265 270
 Ile Leu Leu Trp Gly Tyr Gly Ala Leu Lys Ala Leu Cys Pro Glu Met
 275 280 285
 Leu Lys Ser Pro Gln Arg Phe Met Leu Tyr Ile Ala Ile Leu Thr Leu
 290 295 300
 Ser Leu Leu Trp Cys Arg Gly Thr Glu Ile Phe Cys Ala Tyr Trp Val
 305 310 315 320
 Ser Tyr Leu Ser Tyr Pro Pro Ile Leu Pro Phe Thr Ala Val Leu Leu
 325 330 335
 Gly Tyr Phe Leu Gly Leu Pro Ile Ala Gly Phe Ser Cys Thr Phe Leu
 340 345 350
 Ala Leu Leu Tyr Thr Leu Gly Ser Asp Leu Trp Asn Asn Ser Trp Phe
 355 360 365
 Leu Ser Ile Asn Leu Leu Cys Ser Trp Arg Ile Leu Val Ser Leu His
 370 375 380
 Arg Val Ser Arg Leu Ser Ser Val Phe Trp Ala Cys Met Lys Leu Gly
 385 390 395 400
 Gly Val Ala Met Gly Ser Leu Leu Met Phe Arg Ile Phe Thr Asn Thr
 405 410 415
 Ile Ser Arg Glu Ala Leu Tyr Ala Asp Gly Ile Glu Ser Phe Val Tyr
 420 425 430

Ser Leu Ile Thr Ala Ile Ser Val Val Ala Leu Ile Pro Val Phe Glu
 435 440 445
 Ala Ser Phe Gly Ala Ser Thr Asn Phe Ser Leu Leu Thr Tyr Leu Ser
 450 455 460
 Pro Glu Asn Ala Leu Leu Lys Arg Leu Phe Lys Glu Ala Pro Gly Thr
 465 470 475 480
 Tyr Gln His Ser Val Leu Val Gly Ser Leu Ala Glu Ala Ala Ala Gln
 485 490 495
 Ala Ile Gly Ala Asp Ser Leu Tyr Cys Leu Val Ala Ala His Tyr His
 500 505 510
 Asp Ile Gly Lys Leu Ile Asn Pro Gly Phe Phe Ser Glu Asn Gln Lys
 515 520 525
 Ile Leu Gln Gln Ser Gly His Ser Leu Ser Pro Leu Glu Cys Ala Lys
 530 535 540
 Met Ile Met Arg His Ile Pro Glu Gly Val Asn Leu Ala Arg Gln Ala
 545 550 555 560
 Gly Leu Pro Glu Ser Phe Ile Gln Val Ile Glu Glu His His Gly Thr
 565 570 575
 Ser Val Ile Arg Ser Ala Tyr Tyr Ser His Met Val Glu Asn Pro Ser
 580 585 590
 Thr Gly Ser Phe Asp Glu Glu Leu Phe Arg Tyr Ser Gly Asn Lys Pro
 595 600 605
 Ser Ser Lys Glu Thr Thr Ile Ile Met Ile Ala Asp Ser Phe Glu Ala
 610 615 620
 Ala Ser Arg Ser Leu Lys Asn Ala Ser Leu Pro Asp Leu Gln Arg Leu
 625 630 635 640
 Ile Asp Gln Ile Ile Gln Gly Lys Leu Gln Asp Gly Gln Phe Ser Cys
 645 650 655
 Ser Pro Ile Thr Leu Asp Glu Leu Ala Leu Ile Ser Lys Ser Met Val
 660 665 670
 Gln Thr Leu Tyr Gly Ala Leu His Ser Arg Met Lys Tyr Pro Glu Ile
 675 680 685
 Ser Tyr Gln Ile Ser Met Asp Ser Cys Pro Lys Pro Ser Ile Gly Gly
 690 695 700
 Thr
 705

<210> 51
 <211> 182
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 51
 Leu Lys Glu Lys Arg Arg Asn Ile Val Tyr Leu Leu Val Ile Tyr Gln
 1 5 10 15
 Glu Ile Phe Trp Leu Thr Met Leu His Gln Pro Tyr Tyr Asp Lys Ile
 20 25 30
 Leu Thr Gly Asn Thr Ile Tyr Ile Pro Gly His Thr His Lys Asp Ser
 35 40 45
 Asn Lys Leu Phe Gln Lys Lys Ser Arg Ala Ile Trp Val Asp Glu Lys
 50 55 60
 Pro Phe Ser Leu Asp Cys Phe Ser Asn Val Phe Leu Ile Phe Val Ser
 65 70 75 80
 Leu Val Pro Ile Ala Gly Leu Val Arg Ala Tyr Gln Ile Lys Lys Ser
 85 90 95
 Leu Asp Arg Thr Thr Val Gln Ile Gly Tyr Ser Pro Ser Leu Ser Cys
 100 105 110
 Glu Gln Lys Glu Cys Val Glu Ala Phe Val Asn Gly Tyr Gly Leu Ile
 115 120 125
 Cys Ile Ser Ile Leu Gly Gly Leu Gly Ile Leu Val Pro Ile Leu Ile
 130 135 140

Leu Val Val Leu Ser Leu Leu Leu Leu Gly Ile Leu Met Leu Phe Ser
 145 150 155 160
 Leu Ser Thr Tyr Glu Ser Ile Lys Asn Tyr Ile Ser Lys His Ile Cys
 165 170 175
 Trp Lys Ser Asn Ala Thr
 180

<210> 52
 <211> 117
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 52
 Val Ser Trp Phe Pro Ile Leu Gly Ile Phe Leu Ala Met Arg Tyr Ala
 1 5 10 15
 Lys His Gln Thr Asn Trp Asn Asp Glu Asn Val Lys Ala Asn Leu Gly
 20 25 30
 Tyr Leu Pro Ser Thr Asn Cys Lys Asn Ala Leu Cys Arg Met Ser Ser
 35 40 45
 Arg Leu Thr Ser Ser Ile Lys Thr Ala Gly Ile Leu Gly Gly Cys Gly
 50 55 60
 Ile Leu Leu Pro Ile Phe Leu Leu Leu Leu Ala Ile Leu Leu Ile Ser
 65 70 75 80
 Val Leu Phe Gln Leu Ile Met Leu Pro Phe Arg Leu Cys Cys Phe Ala
 85 90 95
 Leu Arg Gln Ser Val Ser Ser Asp Thr Val Thr Asn Leu Leu Leu Leu
 100 105 110
 Asn Asn Thr Leu Ala
 115

<210> 53
 <211> 105
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 53
 Cys Phe Ala Tyr Leu Ile Ala Arg Asn Ile Pro Arg Met Gly Asn His
 1 5 10 15
 Glu Thr Tyr Ile His Pro Gly Val Leu Pro Ser Ser His Ala Gln Asp
 20 25 30
 Val Ser Arg Ser Thr Val Tyr Pro Ser Arg Ser Phe Ile Met Arg Arg
 35 40 45
 Met Leu Met Gly Trp Asn Phe Asn Arg Val Pro Ser Lys Ser Ser Glu
 50 55 60
 Gln Leu Met Asp Gly His Arg Ile Pro Leu Ile Phe Phe Gly Lys His
 65 70 75 80
 His Pro Thr Ile Ser Ile Leu Asn Val Asn Arg Phe Ser Trp Leu Ser
 85 90 95
 Ile Phe Tyr Asn Gly Glu Arg Gly Phe
 100 105

<210> 54
 <211> 235
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 54
 Lys Met Leu Ser Val Cys Tyr Ser Asp Pro Cys Leu Ser Asp Phe Cys
 1 5 10 15
 Gln Gly Lys Arg Pro Leu Arg Ile Ala Ser Arg Asn Ser Asn Leu Ala
 20 25 30

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Ala | Gln | Val | His | Glu | Cys | Ile | Ser | Leu | Leu | Arg | Ser | Trp | Tyr | Pro |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Lys | Leu | Trp | Phe | Gln | Leu | Ser | Thr | Thr | Glu | Thr | Thr | Gly | Asp | Arg | Glu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Lys | Lys | Ile | Pro | Leu | His | Leu | Val | Glu | Asn | Ser | Tyr | Phe | Phe | Thr | Asp |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Val | Asp | Ala | Leu | Val | His | Lys | Gly | Val | Cys | Asp | Leu | Ala | Ile | His |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ser | Ala | Lys | Asp | Leu | Pro | Glu | Thr | Pro | Ser | Leu | Pro | Val | Val | Ala | Ile |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Thr | Arg | Cys | Leu | His | Pro | Ala | Asp | Leu | Leu | Val | Tyr | Ala | Asp | His | Tyr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Val | His | Glu | Pro | Leu | Pro | Leu | Ser | Pro | Arg | Leu | Gly | Ser | Ser | Ser | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Arg | Arg | Ser | Ala | Val | Leu | Lys | Gln | Leu | Phe | Pro | Gln | Gly | Gln | Ile | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asp | Ile | Arg | Gly | Thr | Ile | Glu | Glu | Arg | Leu | Asp | Gln | Leu | His | Arg | Gly |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| His | Tyr | Asp | Ala | Ile | Val | Leu | Ala | Lys | Ala | Ala | Ser | Leu | Arg | Leu | His |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Leu | His | His | Ala | Tyr | Ser | Ile | Glu | Leu | Pro | Pro | Pro | Tyr | His | Ala | Leu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Gln | Gly | Ser | Leu | Ala | Ile | Thr | Ala | Lys | Asp | His | Ala | Gly | Lys | Trp | Lys |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gln | Leu | Phe | Thr | Pro | Ile | His | Cys | His | Ser | Ser | | | | | |
| 225 | | | | | 230 | | | | | 235 | | | | | |

<210> 55

<211> 455

<212> PRT

<213> Chlamydia pneumoniae

<400> 55

| | | | | | | | | | | | | | | | |
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| Ile | Arg | Met | Ala | Thr | Lys | Thr | Lys | Thr | Gln | Trp | Thr | Cys | Asn | Gln | Cys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Ala | Thr | Ala | Pro | Lys | Trp | Leu | Gly | Gln | Cys | Pro | Gly | Cys | His | Asn |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Trp | Asn | Ser | Leu | Val | Glu | Glu | Tyr | Val | Pro | Gln | Ala | Arg | Ser | Gly | Thr |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Ser | Ser | Arg | Ser | Ser | Thr | Ser | Ala | Ile | Ala | Leu | Ser | Ser | Ile | Glu | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Glu | Asn | Glu | Ser | Arg | Ile | Phe | Ile | Asp | His | Ala | Gly | Trp | Asp | Arg | Ile |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Gly | Gly | Gly | Val | Val | Arg | Gly | Ser | Leu | Thr | Leu | Leu | Gly | Gly | Asp |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Pro | Gly | Ile | Gly | Lys | Ser | Thr | Leu | Leu | Gln | Thr | Ala | Glu | Arg | Leu | |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ala | Ser | Gln | Lys | Tyr | Lys | Val | Leu | Tyr | Val | Cys | Gly | Glu | Glu | Ser | Val |
| | | | 115 | | | | 120 | | | | | 125 | | | |
| Thr | Gln | Thr | Ser | Leu | Arg | Ala | Lys | Arg | Leu | Asn | Ile | Ser | Ser | Pro | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ile | Tyr | Leu | Phe | Pro | Glu | Thr | Asn | Leu | Asp | Asn | Ile | Lys | Gln | Gln | Ile |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | Thr | Leu | Glu | Pro | Asp | Ile | Leu | Ile | Ile | Asp | Ser | Ile | Gln | Ile | Ile |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Phe | Asn | Pro | Thr | Leu | Asn | Ser | Ala | Pro | Gly | Ser | Val | Ala | Gln | Val | Arg |
| | | | 180 | | | | 185 | | | | | | 190 | | |
| Glu | Val | Thr | Tyr | Glu | Leu | Met | Gln | Ile | Ala | Lys | Ser | Ala | Gln | Ile | Thr |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Thr | Phe | Ile | Ile | Gly | His | Val | Thr | Lys | Ser | Gly | Glu | Ile | Ala | Gly | Pro |
| | 210 | | | | | 215 | | | | | 220 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Val | Leu | Glu | His | Leu | Val | Asp | Thr | Val | Leu | Tyr | Phe | Glu | Gly | Asn |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ser | His | Ala | Asn | Tyr | Arg | Met | Ile | Arg | Ser | Val | Lys | Asn | Arg | Phe | Gly |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Pro | Thr | Asn | Glu | Leu | Leu | Ile | Leu | Ser | Met | His | Ala | Asp | Gly | Leu | Lys |
| | | 260 | | | | | 265 | | | | | | 270 | | |
| Glu | Val | Ser | Asn | Pro | Ser | Gly | Leu | Phe | Leu | Gln | Glu | Lys | Thr | Gly | Pro |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Thr | Thr | Gly | Ser | Met | Ile | Ile | Pro | Ile | Ile | Glu | Gly | Ser | Gly | Ala | Leu |
| | 290 | | | | 295 | | | | | | 300 | | | | |
| Leu | Ile | Glu | Leu | Gln | Ala | Leu | Val | Ser | Ser | Ser | Pro | Phe | Ala | Asn | Pro |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Val | Arg | Lys | Thr | Ala | Gly | Phe | Asp | Pro | Asn | Arg | Phe | Ser | Leu | Leu | Leu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ala | Val | Leu | Glu | Lys | Arg | Ala | Gln | Val | Lys | Leu | Phe | Thr | Met | Asp | Val |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Phe | Leu | Ser | Ile | Thr | Gly | Gly | Leu | Lys | Ile | Ile | Glu | Pro | Ala | Ala | Asp |
| | 355 | | | | | | 360 | | | | | 365 | | | |
| Leu | Gly | Ala | Leu | Leu | Ala | Val | Ala | Ser | Ser | Leu | Tyr | Asn | Arg | Leu | Leu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Pro | Asn | Asn | Ser | Ile | Val | Ile | Gly | Glu | Val | Gly | Leu | Gly | Gly | Glu | Ile |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Arg | His | Val | Ala | His | Leu | Glu | Arg | Arg | Ile | Lys | Glu | Gly | Lys | Leu | Met |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Gly | Phe | Glu | Gly | Ala | Ile | Leu | Pro | Glu | Gly | Gln | Ile | Ser | Ser | Leu | Pro |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Lys | Glu | Ile | Arg | Glu | Asn | Phe | Arg | Leu | Gln | Gly | Val | Lys | Thr | Ile | Lys |
| | 435 | | | | | | 440 | | | | | 445 | | | |
| Asp | Ala | Ile | Arg | Leu | Leu | Leu | | | | | | | | | |
| | 450 | | | | | 455 | | | | | | | | | |

<210> 56

<211> 259

<212> PRT

<213> Chlamydia pneumoniae

<400> 56

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Leu | Ser | Phe | Phe | Pro | Pro | Ile | Lys | Ile | Pro | Asn | Ser | Lys | Phe | Lys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Asp | Gly | Ala | Leu | Leu | Ser | Met | His | Pro | Pro | Ile | Asp | Ile | Thr | Ala | Ile |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Ala | Lys | Leu | Asn | Phe | Thr | Phe | Thr | Gln | Pro | Lys | Leu | Leu | Glu | Ile |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ala | Leu | Thr | His | Pro | Ser | Tyr | Lys | Asn | Glu | Ser | Ala | Val | Gln | Ile | Glu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Asp | Ser | Glu | Arg | Leu | Glu | Phe | Leu | Gly | Asp | Ala | Val | Leu | Gly | Leu | Ile |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | |
| Val | Thr | Glu | His | Leu | Phe | Leu | Leu | Phe | Pro | Ser | Met | Asp | Glu | Gly | Thr |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Leu | Ser | Thr | Ala | Arg | Ala | Ser | Leu | Val | Asn | Ala | Lys | Ala | Cys | Cys | Arg |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Tyr | Thr | Thr | Met | Leu | Gly | Ile | Gly | Asp | Tyr | Leu | Leu | Ile | Gly | Lys | Gly |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Glu | Lys | Ile | Gln | Ser | Glu | Arg | Gly | Arg | Leu | Ser | Ala | Tyr | Ala | Asn | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Phe | Glu | Ser | Ile | Leu | Gly | Ala | Val | Tyr | Leu | Asp | Gly | Gly | Leu | Ser | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | Arg | Lys | Leu | Thr | Val | Pro | Leu | Leu | Pro | Pro | Arg | Glu | Glu | Ile | Leu |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Pro | Leu | Met | Ser | Gly | Asn | Pro | Lys | Asn | Leu | Leu | Gln | Gln | Phe | Thr | Gln |
| | | | 180 | | | | | 185 | | | | | 190 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Gln | Phe | Arg | Val | Leu | Pro | Val | Tyr | Gln | Ser | Thr | Ala | Val | Thr | Asp |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Ala | Gln | Gly | Asn | Val | Ser | Tyr | Gln | Ile | Gln | Val | Leu | Val | Asn | Gln | Glu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Val | Trp | Gly | Glu | Gly | Asn | Ala | Ser | Ser | Lys | Lys | Glu | Ala | Glu | Lys | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ala | Ala | Gln | Gln | Ala | Leu | Asp | Thr | Tyr | Gly | Asn | Lys | Asn | Gln | Asn | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Met | Asp | Val | | | | | | | | | | | | | |

<210> 57
 <211> 165
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 57

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Phe | Trp | Ile | Cys | Tyr | Leu | Ile | Arg | Ile | Arg | Met | Arg | Ser | Ala | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| His | Leu | Gln | His | Leu | Arg | His | Phe | His | Asn | His | Gly | Ser | Ile | Leu | Phe |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Asn | Leu | Leu | Thr | Ile | Lys | Asp | Cys | Phe | Leu | Leu | Glu | Thr | Lys | Leu |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Gln | Asn | Phe | Ile | Ala | Lys | Ala | Ser | Lys | Thr | Ile | Asp | Thr | Val | Arg | Trp |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Arg | Glu | Asn | Ile | Phe | Arg | Ser | Met | Pro | Glu | Ile | Tyr | Thr | Val | Val | Arg |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Lys | Arg | Arg | Leu | Asp | Phe | Phe | Ala | Ala | Glu | Leu | Val | His | Arg | Pro | Lys |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Leu | Ser | Leu | Val | Arg | Asp | Leu | Trp | Val | Phe | Pro | Gly | Glu | Glu | Ile | Leu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Glu | Gly | Glu | Glu | Asp | Cys | Met | Leu | Phe | Leu | Leu | Leu | Ser | Gly | Asp | Arg |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Ala | Gly | Ser | Gly | Ile | Phe | Phe | Thr | Gly | Pro | Tyr | Pro | Ser | Asp | Leu | Tyr |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Glu | Leu | Glu | Lys | Gly | Thr | Thr | Gly | Leu | Leu | Leu | Ala | Phe | Ser | Ser | Val |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gly | Ile | Pro | Val | Ile | | | | | | | | | | | |
| | | | | 165 | | | | | | | | | | | |

<210> 58
 <211> 610
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 58

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Phe | Leu | Lys | Leu | Ser | Leu | His | Arg | Ile | Ser | Leu | Met | Lys | Glu | Val |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Glu | Gln | Arg | Ile | Arg | Ser | Leu | Tyr | Asp | Ala | Val | Thr | Ala | Glu | Asn | Ile |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Cys | Arg | Trp | Leu | Ser | Asn | Asp | Cys | Thr | Gln | Gln | Asp | Ala | Lys | Thr | Ile |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Leu | Gly | Trp | Leu | Asp | Thr | Asp | Pro | Ala | Gln | Leu | Glu | Asp | Leu | Phe | Gly |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ala | Thr | Leu | Thr | Phe | Gly | Thr | Gly | Gly | Leu | Arg | Ser | Leu | Met | Gly | Ile |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Thr | Asn | Arg | Ile | Asn | Leu | Phe | Thr | Ile | Arg | Arg | Thr | Thr | Gln | Gly |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Leu | Val | Gln | Val | Leu | Arg | Ala | His | Leu | Pro | His | Pro | Gly | Asp | Pro | Met |
| | | | 100 | | | | | 105 | | | | | 110 | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Arg | Val | Val | Val | Gly | Cys | Asp | Thr | Arg | His | Asn | Ser | Ile | Glu | Phe | Ala | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Gln | Glu | Thr | Ala | Lys | Val | Leu | Ala | Gly | Asn | Gly | Cys | Glu | Val | Phe | Leu | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Phe | Gln | Tyr | Pro | Glu | Pro | Leu | Ala | Leu | Val | Ser | Phe | Thr | Val | Arg | Tyr | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Glu | Arg | Ala | Ile | Gly | Gly | Val | Met | Ile | Thr | Ala | Ser | His | Asn | Pro | Pro | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Asn | Tyr | Asn | Gly | Tyr | Lys | Val | Tyr | Met | Ala | Ser | Gly | Gly | Gln | Val | Leu | |
| | | 180 | | | | | | 185 | | | | | 190 | | | |
| Pro | Pro | Leu | Asp | Gln | Glu | Ile | Val | Ala | Ala | Cys | Ser | Ala | Val | Asn | Glu | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Ile | Leu | Ser | Val | Pro | Ser | Ile | Asp | His | Pro | Asn | Ile | His | Leu | Ile | Gly | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Lys | Glu | Tyr | Glu | Ala | Leu | Tyr | Arg | Asp | Thr | Leu | Lys | Gln | Leu | Gln | Leu | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Tyr | Pro | Glu | Ala | Asn | Arg | Ile | Ser | Gly | Arg | Ser | Leu | Ser | Ile | Ser | Tyr | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Ser | Pro | Leu | His | Gly | Thr | Gly | Ile | Ser | Leu | Val | Pro | His | Val | Leu | Lys | |
| | | 260 | | | | | | 265 | | | | | 270 | | | |
| Asp | Trp | Gly | Phe | Leu | Ser | Val | His | Leu | Val | Glu | Lys | Gln | Ala | Ile | Gly | |
| | 275 | | | | | | 280 | | | | | 285 | | | | |
| Asp | Gly | Asp | Phe | Pro | Thr | Val | Gln | Leu | Pro | Asn | Pro | Glu | Asp | Pro | Glu | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Ala | Leu | Thr | Leu | Gly | Ile | Glu | Gln | Met | Leu | Ala | Asn | Asp | Asp | Asp | Leu | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Phe | Ile | Ala | Thr | Asp | Pro | Asp | Ala | Asp | Arg | Val | Gly | Val | Val | Cys | Leu | |
| | | | | 325 | | | | | 330 | | | | | 335 | | |
| Glu | Asp | Gly | Gln | Pro | Tyr | Arg | Phe | Asn | Gly | Asn | Gln | Met | Ala | Ser | Leu | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| Leu | Ala | Asp | His | Ile | Leu | Gly | Ala | Trp | Ser | Lys | Thr | Arg | His | Leu | Gly | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| Glu | His | Asp | Lys | Leu | Val | Lys | Ser | Leu | Val | Thr | Thr | Glu | Met | Leu | Ser | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Ala | Ile | Ala | Lys | His | Tyr | His | Val | Asp | Leu | Ile | Asn | Val | Gly | Thr | Gly | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| Phe | Lys | Tyr | Ile | Gly | Glu | Lys | Ile | Glu | Ser | Trp | Arg | Asn | Ser | Thr | Asn | |
| | | | | 405 | | | | | 410 | | | | | 415 | | |
| Lys | Phe | Val | Phe | Gly | Ala | Glu | Glu | Ser | Tyr | Gly | Cys | Leu | Tyr | Gly | Thr | |
| | | | 420 | | | | | 425 | | | | 430 | | | | |
| His | Val | Glu | Asp | Lys | Asp | Ala | Ile | Ile | Ala | Ser | Ala | Leu | Ile | Ala | Glu | |
| | | 435 | | | | | 440 | | | | | 445 | | | | |
| Ala | Ala | Leu | Gln | Gln | Lys | Leu | Gln | Gly | Lys | Thr | Leu | Cys | Asp | Ala | Leu | |
| | 450 | | | | | 455 | | | | | 460 | | | | | |
| Leu | Ser | Leu | Tyr | Glu | Thr | Tyr | Gly | Tyr | Phe | Ala | Asn | Lys | Thr | Glu | Ser | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | |
| Val | Val | Phe | Ser | Ala | Lys | Thr | Asp | Glu | Gln | Glu | Ile | Arg | Lys | Lys | Leu | |
| | | | | 485 | | | | | 490 | | | | | 495 | | |
| Ser | His | Leu | Glu | Glu | Ile | Ser | Ser | Ala | Asn | Phe | Phe | Ser | Gly | Lys | Tyr | |
| | | 500 | | | | | | 505 | | | | | 510 | | | |
| Gln | Val | Glu | Lys | Phe | Glu | Asn | Tyr | Lys | Gln | Gly | Ile | Gly | Phe | Asn | Leu | |
| | | 515 | | | | | 520 | | | | | 525 | | | | |
| Leu | Ser | Lys | Asp | Ser | Tyr | Ala | Leu | Thr | Leu | Pro | Lys | Thr | Ser | Met | Leu | |
| | | 530 | | | | 535 | | | | | 540 | | | | | |
| Cys | Tyr | Tyr | Phe | Ser | Gly | Gly | Gly | Arg | Val | Ile | Ile | Arg | Pro | Ser | Gly | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | |
| Thr | Glu | Pro | Lys | Ile | Lys | Phe | Tyr | Phe | Glu | Met | Ser | Thr | His | Tyr | Pro | |
| | | | | 565 | | | | | 570 | | | | | 575 | | |
| Glu | Arg | Val | Thr | Asp | Lys | Glu | Ile | Gln | Lys | Gln | Arg | Glu | Ala | Glu | Ser | |
| | | | 580 | | | | | 585 | | | | | 590 | | | |

Phe Gln His Leu Asp Asp Phe Ile Phe Asp Phe Lys Glu Lys Phe Ser
 595 600 605
 Asn Leu
 610

<210> 59
 <211> 214
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 59
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 Glu Leu Pro Tyr Asp Tyr Asp Ala Leu Glu Pro Val Ile Ser Ser Glu
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 Ile Met Ile Leu His His Gln Lys His His Gln Ile Tyr Ile Asn Asn
 35 40 45
 Leu Asn Ala Ala Leu Lys Arg Leu Asp Ala Ala Glu Thr Gln Gln Asn
 50 55 60
 Leu Asn Glu Leu Ile Ala Leu Glu Pro Ala Leu Arg Phe Asn Gly Gly
 65 70 75 80
 Gly His Ile Asn His Ser Leu Phe Trp Glu Thr Leu Ala Pro Ile Asp
 85 90 95
 Gln Gly Gly Gly Gln Pro Pro Lys His Glu Leu Leu Ser Leu Ile Glu
 100 105 110
 Arg Phe Trp Gly Thr Met Asp Asn Phe Leu Lys Lys Leu Ile Glu Val
 115 120 125
 Ala Ala Gly Val Gln Gly Ser Gly Trp Ala Trp Leu Gly Phe Cys Pro
 130 135 140
 Ala Lys Gln Glu Leu Val Leu Gln Ala Thr Ala Asn Gln Asp Pro Leu
 145 150 155 160
 Glu Pro Leu Thr Gly Lys Leu Pro Leu Leu Gly Val Asp Val Trp Glu
 165 170 175
 His Ala Tyr Tyr Leu Gln Tyr Lys Asn Val Arg Met Asp Tyr Leu Lys
 180 185 190
 Ala Phe Pro Gln Ile Ile Asn Trp Gly His Ile Glu Asn Arg Phe Ser
 195 200 205
 Glu Ile Ile Ser Ser Lys
 210

<210> 60
 <211> 312
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 60
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 20 25 30
 His Cys His Glu Met Ile His Ala Asn Glu Leu Gly Gln Asn Tyr Asn
 35 40 45
 Cys Cys Pro Lys Cys Ser Tyr His Tyr Arg Ile Thr Ala Ile Glu Arg
 50 55 60
 Val Lys Leu Leu Ala Asp Lys Asp Ser Trp Arg Pro Leu Tyr Thr Asp
 65 70 75 80
 Leu Lys Ser Gln Asp Pro Leu Glu Phe Ile Asp Thr Asp Thr Tyr Ala
 85 90 95
 Asn Arg Leu Glu Lys Ala Arg Lys Asn Thr Thr Glu Ser Glu Gly Val
 100 105 110

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Val | Gly | Ile | Cys | Thr | Ile | Gly | Leu | His | Pro | Val | Ala | Leu | Ala | Val |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Met | Asp | Phe | Asn | Phe | Met | Ala | Gly | Ser | Met | Gly | Ala | Val | Val | Gly | Glu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Lys | Leu | Thr | Arg | Leu | Ile | Glu | Glu | Ala | Ile | Glu | Thr | Arg | Leu | Pro | Val |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ile | Ile | Val | Ser | Ala | Ser | Gly | Gly | Ala | Arg | Met | Gln | Glu | Ser | Val | Phe |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ser | Leu | Met | Gln | Met | Val | Lys | Thr | Ser | Ala | Ala | Leu | Ala | Lys | Leu | His |
| | | | 180 | | | | | 185 | | | | | | 190 | |
| Glu | Ala | Gly | Leu | Pro | Tyr | Ile | Ser | Val | Leu | Thr | Asn | Pro | Thr | Ser | Gly |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Gly | Val | Thr | Ala | Ser | Phe | Ala | Ala | Leu | Gly | Asp | Ile | Ile | Ile | Ala | Glu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Pro | Lys | Ala | Leu | Ile | Cys | Phe | Ala | Gly | Pro | Arg | Val | Val | Ala | Gln | Val |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ile | Gly | Glu | Asp | Leu | Pro | Glu | Gly | Ala | Gln | Lys | Ser | Glu | Phe | Leu | Leu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Glu | His | Gly | Met | Ile | Asp | Lys | Ile | Val | Glu | Arg | Lys | Glu | Leu | Lys | Thr |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Thr | Leu | Gln | Thr | Leu | Leu | Asp | Tyr | Phe | Leu | Ala | Gln | Glu | Tyr | Thr | Gly |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Gly | Lys | Ser | Lys | Ala | Pro | Arg | Asp | Leu | Ser | Lys | Arg | Leu | Lys | Glu | Ile |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Phe | Leu | Leu | Thr | Asp | Asp | Ser | Glu | | | | | | | | |
| 305 | | | | | | 310 | | | | | | | | | |

<210> 61
 <211> 163
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Lys | His | His | Thr | Ala | Ser | Cys | Asn | Asp | Asn | Ile | Ile | Cys | Asn | Ala |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Leu | Met | Thr | Val | Phe | Cys | Glu | Leu | Asp | Ser | Gly | Gly | Glu | Leu | Pro |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Tyr | Thr | Thr | Pro | Gly | Ala | Ala | Gly | Ala | Asp | Leu | Arg | Ala | Asn | Ile |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Glu | Glu | Pro | Ile | Ala | Leu | Leu | Pro | Gly | Gln | Arg | Ala | Leu | Ile | Pro | Thr |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gly | Ile | Lys | Ala | Glu | Ile | Pro | Glu | Gly | Tyr | Glu | Leu | Gln | Val | Arg | Pro |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Arg | Ser | Gly | Leu | Ala | Leu | Lys | His | Gly | Ile | Thr | Val | Leu | Asn | Ser | Pro |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Gly | Thr | Ile | Asp | Ser | Asp | Tyr | Arg | Gly | Glu | Ile | Arg | Val | Ile | Leu | Ile |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asn | Phe | Gly | Asp | Ser | Thr | Phe | Ile | Ile | Glu | Pro | Lys | Met | Arg | Ile | Ala |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gln | Val | Val | Leu | Ser | Pro | Val | Val | Gln | Ala | Thr | Phe | Val | Val | Lys | Gln |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Glu | Ser | Leu | Ala | Glu | Thr | Ala | Arg | Gly | Ser | Gly | Gly | Phe | Gly | His | Thr |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gly | Ala | Ser | | | | | | | | | | | | | |

<210> 62
 <211> 175
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 62

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Lys | Leu | Pro | Glu | Glu | Val | Glu | Val | Leu | Val | Ile | Leu | Glu | Gln | Ala |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Lys | Met | Pro | Ser | Tyr | Cys | Gln | Asn | Gln | Gln | Asp | Phe | Ser | Leu | Phe | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Leu | Ser | Pro | Arg | Leu | Val | Met | Phe | Leu | Gly | Lys | His | Ser | Arg | Asp |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Glu | Ile | Leu | Gln | Asp | Leu | Thr | Asp | Leu | Val | Asp | Ala | Ala | Gly | Leu | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Glu | Asp | Lys | Gln | Ala | Phe | Phe | Asp | Ala | Leu | Val | Arg | Arg | Glu | Asn | Ile |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Met | Ser | Thr | Gly | Ile | Gly | Met | Gly | Val | Ala | Ile | Pro | His | Gly | Lys | Leu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Glu | Ser | Cys | Ser | Asn | Phe | Phe | Ile | Ala | Ile | Gly | Ile | His | Thr | Gln | Gly |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ile | Leu | Trp | Asp | Ala | Ile | Asp | Gly | Ala | Leu | Val | Arg | Leu | Val | Phe | Leu |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Ile | Gly | Gly | Pro | Glu | Asn | Ala | Gln | Ala | Glu | Tyr | Leu | Lys | Leu | Leu | Ser |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Thr | Leu | Thr | Leu | Ser | Leu | Arg | Glu | Glu | Ser | Arg | Arg | Gln | Gln | Leu | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gln | Val | Asn | Thr | Ile | Glu | Glu | Val | Met | Asn | Val | Phe | Val | Gly | Met | |
| | | | | 165 | | | | | 170 | | | | | 175 | |

<210> 63
 <211> 236
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 63

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Ser | His | Glu | Cys | Ile | Cys | Gly | Asp | Val | Lys | Met | Asp | Leu | Lys | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Asp | Glu | Val | Ala | Ser | Leu | Leu | Asp | Val | Ser | Glu | His | Thr | Val | Leu | Gln |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Trp | Leu | Lys | Glu | Gly | Ala | Ile | Pro | Ser | Tyr | Ser | Met | Asn | Asn | Glu | Tyr |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Arg | Phe | Ser | Arg | Glu | Glu | Ile | Glu | Asn | Trp | Leu | Leu | His | Asn | Gln | Ala |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Leu | Met | Ile | Gln | Glu | Arg | Gly | Glu | Asp | Lys | Glu | Ala | Leu | Lys | Asp | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Ser | Leu | Lys | Tyr | Ser | Leu | Tyr | Lys | Ala | Ile | His | Arg | Gly | Gly | Val | Leu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Cys | Asp | Val | Val | Val | His | Ser | Lys | Glu | Glu | Ala | Leu | Gln | Tyr | Ala | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Lys | Tyr | Ile | Ala | Gln | Lys | Phe | Gln | Leu | Asp | Glu | Ser | Val | Leu | Phe | Glu |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Met | Leu | Ser | His | Arg | Glu | Asn | Leu | Met | Ser | Thr | Gly | Ile | Gly | Glu | Gly |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ile | Ala | Leu | Pro | His | Ala | Lys | Asp | Phe | Leu | Ile | Asn | Ala | Tyr | Tyr | Asp |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ile | Val | Val | Pro | Met | Phe | Leu | Ala | Glu | Pro | Ile | Glu | Tyr | Gly | Ala | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Asp | Gly | Lys | Pro | Val | Gly | Ile | Leu | Phe | Phe | Leu | Phe | Ala | Cys | Gln | Asp |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Lys | Ser | His | Leu | Asn | Leu | Val | Asn | Lys | Ile | Val | His | Leu | Gly | Met | Ser |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Leu | Asn | Ala | Arg | Ser | Phe | Phe | Lys | Asn | Tyr | Pro | Asn | Lys | Asp | Gln | Leu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Ala | Tyr | Val | Lys | Glu | Trp | Glu | Ser | Gln | Thr | His | | | | |
| 225 | | | | | | 230 | | | | | 235 | | | | |

<210> 64
 <211> 480
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 64
 Lys Lys Ser Phe Cys Cys Tyr Gly Asp Pro His Arg Leu Pro Gly Asp
 1 5 10 15
 Cys Ser Arg Met Met Ser Ser Lys Arg Thr Ser Lys Ile Ala Val Leu
 20 25 30
 Ser Ile Leu Leu Thr Phe Thr His Ser Ile Gly Phe Ala Asn Ala Asn
 35 40 45
 Ser Ser Val Gly Leu Gly Thr Val Tyr Ile Thr Ser Glu Val Val Lys
 50 55 60
 Lys Pro Gln Lys Gly Ser Glu Arg Lys Gln Ala Lys Lys Glu Pro Arg
 65 70 75 80
 Ala Arg Lys Gly Tyr Leu Val Pro Ser Ser Arg Thr Leu Ser Ala Arg
 85 90 95
 Ala Gln Lys Met Lys Asn Ser Ser Arg Lys Glu Ser Ser Gly Gly Cys
 100 105 110
 Asn Glu Ile Ser Ala Asn Ser Thr Pro Arg Ser Val Lys Leu Arg Arg
 115 120 125
 Asn Lys Arg Ala Glu Gln Lys Ala Ala Lys Gln Gly Phe Ser Ala Phe
 130 135 140
 Ser Asn Leu Thr Leu Lys Ser Leu Leu Pro Lys Leu Pro Ser Lys Gln
 145 150 155 160
 Lys Thr Ser Ile His Glu Arg Glu Lys Ala Thr Ser Arg Phe Val Asn
 165 170 175
 Glu Ser Gln Leu Ser Ser Ala Arg Lys Arg Tyr Cys Thr Pro Ser Ser
 180 185 190
 Ala Ala Pro Ser Leu Phe Leu Glu Thr Glu Ile Val Arg Ala Pro Val
 195 200 205
 Glu Arg Thr Lys Glu Leu Gln Asp Asn Glu Ile His Ile Pro Val Val
 210 215 220
 Gln Val Gln Thr Asn Pro Lys Glu Gln Asn Thr Lys Thr Thr Lys Gln
 225 230 235 240
 Leu Ala Ser Gln Ala Ser Ile Gln Gln Ser Glu Gly Thr Glu Gln Ser
 245 250 255
 Leu Arg Glu Leu Ala Gln Gly Ala Ser Leu Pro Val Leu Val Arg Ser
 260 265 270
 Asn Pro Glu Val Ser Val Gln Arg Gln Lys Glu Glu Leu Lys Glu
 275 280 285
 Leu Val Ala Glu Arg Arg Gln Cys Lys Arg Lys Ser Val Arg Gln Ala
 290 295 300
 Leu Glu Ala Arg Ser Leu Thr Lys Lys Val Ala Arg Gly Gly Ser Val
 305 310 315 320
 Thr Ser Thr Leu Arg Tyr Asp Pro Glu Lys Ala Ala Glu Ile Lys Ser
 325 330 335
 Arg Arg Asn Cys Lys Val Ser Pro Glu Ala Arg Glu Gln Lys Tyr Ser
 340 345 350
 Ser Cys Lys Arg Asp Ala Arg Ala Asn Gly Lys Gln Asp Lys Thr Thr
 355 360 365
 Pro Ser Glu Asp Ala Ser Gln Glu Glu Gln Gln Thr Gly Ala Gly Leu
 370 375 380
 Val Arg Lys Thr Pro Lys Ser Gln Val Ala Ser Asn Ala Gln Asn Phe
 385 390 395 400
 Tyr Arg Asn Ser Lys Asn Thr Asn Ile Asp Ser Tyr Leu Thr Ala Asn
 405 410 415
 Gln Tyr Ser Cys Ser Ser Glu Glu Thr Asp Trp Pro Cys Ser Ser Cys
 420 425 430

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ser | Lys | Arg | Arg | Thr | His | Asn | Ser | Ile | Ser | Val | Cys | Thr | Met | Val |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Val | Thr | Val | Ile | Ala | Met | Ile | Val | Gly | Ala | Leu | Ile | Ile | Ala | Asn | Ala |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Thr | Glu | Ser | Gln | Thr | Thr | Ser | Asp | Pro | Thr | Pro | Pro | Thr | Pro | Thr | Pro |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |

<210> 65
 <211> 53
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 65

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Met | Tyr | Ala | Asn | Cys | Lys | His | Asn | Cys | Leu | Cys | Leu | Tyr | Asp | Phe |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Arg | His | Arg | Ser | Pro | Pro | Gly | Leu | Pro | Leu | Thr | Phe | Thr | Pro | Pro |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Tyr | Ser | Phe | Thr | Leu | Gly | Ile | Phe | Leu | Gly | Arg | Cys | Leu | Ser | Thr | Ser |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Asn | Ile | Val | Leu | Leu | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | |

<210> 66
 <211> 79
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 66

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Val | Met | Thr | Lys | Ile | Gln | Cys | Ser | Ala | Gln | Tyr | Tyr | Arg | Ser | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Pro | Ala | Glu | Arg | Ala | Gln | Thr | Pro | Pro | Gln | Pro | Phe | Leu | Ala | Arg | Asp |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Arg | Ala | Asp | Phe | Trp | Glu | Arg | His | Pro | Arg | Phe | Ser | Ala | Cys | Cys | Arg |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Val | Leu | Leu | Leu | Val | Ala | Trp | Val | Val | Leu | Ala | Leu | Leu | Phe | Leu | Phe |
| 50 | | | | | | 55 | | | | | 60 | | | | |
| Val | Met | Leu | Leu | Pro | Leu | Ala | Ala | Gly | Ser | Tyr | Leu | Leu | Ala | Phe | |
| 65 | | | | | 70 | | | | | 75 | | | | | |

<210> 67
 <211> 590
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 67

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Asp | Tyr | Tyr | Lys | Tyr | Asn | Met | Phe | Phe | Lys | Lys | Asn | Tyr | Met | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Asp | Phe | Pro | Thr | His | Phe | Lys | Gly | Pro | Lys | Leu | Asn | Pro | Ile | Lys | Val |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Asn | Pro | Asn | Phe | Phe | Glu | Arg | Asn | Pro | Lys | Val | Ala | Arg | Val | Leu | Gln |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ile | Thr | Ala | Val | Val | Leu | Gly | Ile | Ile | Ala | Leu | Leu | Ser | Gly | Ile | Val |
| 50 | | | | | | 55 | | | | | 60 | | | | |
| Leu | Ile | Ile | Gly | Thr | Pro | Leu | Gly | Ala | Pro | Ile | Ser | Met | Ile | Leu | Gly |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Gly | Cys | Leu | Leu | Ala | Ser | Gly | Gly | Ala | Leu | Phe | Val | Gly | Gly | Thr | Ile |
| | | | | 85 | | | | 90 | | | | | | 95 | |
| Ala | Thr | Ile | Leu | Gln | Ala | Arg | Asn | Ser | Tyr | Lys | Lys | Ala | Val | Asn | Gln |
| | | | 100 | | | | | 105 | | | | 110 | | | |
| Lys | Lys | Leu | Ser | Glu | Pro | Leu | Met | Glu | Arg | Pro | Glu | Leu | Lys | Ala | Leu |
| | | 115 | | | | | 120 | | | | | 125 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Tyr | Ser | Leu | Asp | Leu | Lys | Glu | Val | Trp | Asp | Leu | His | His | Ser | Val |
| 130 | | | | | | 135 | | | | | 140 | | | | |
| Val | Lys | His | Leu | Lys | Lys | Leu | Asp | Leu | Asn | Leu | Ser | Lys | Thr | Gln | Arg |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Glu | Val | Leu | Asn | Gln | Ile | Lys | Ile | Asp | Asp | Glu | Gly | Pro | Ser | Leu | Gly |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Glu | Cys | Ala | Ala | Met | Ile | Ser | Glu | Asn | Tyr | Asp | Ala | Cys | Leu | Lys | Met |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Leu | Ala | Tyr | Arg | Glu | Glu | Leu | Leu | Lys | Glu | Gln | Thr | Gln | Tyr | Gln | Glu |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Thr | Arg | Phe | Asn | Gln | Asn | Leu | Thr | His | Arg | Asn | Lys | Val | Leu | Leu | Ser |
| 210 | | | | | 215 | | | | | | 220 | | | | |
| Ile | Leu | Ser | Arg | Ile | Thr | Asp | Asn | Ile | Ser | Lys | Ala | Gly | Gly | Val | Phe |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ser | Leu | Lys | Phe | Ser | Thr | Leu | Ser | Ser | Arg | Met | Ser | Arg | Ile | His | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Thr | Thr | Thr | Val | Ile | Leu | Ala | Leu | Ser | Ala | Val | Val | Ser | Val | Met | Val |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Val | Ala | Ala | Leu | Ile | Pro | Gly | Gly | Ile | Leu | Ala | Leu | Pro | Ile | Leu | Leu |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Ala | Val | Ala | Ile | Ser | Ala | Gly | Val | Ile | Val | Thr | Gly | Leu | Ser | Tyr | Leu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Val | Arg | Gln | Ile | Leu | Ser | Asn | Thr | Lys | Arg | Asn | Arg | Gln | Asp | Phe | Tyr |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Lys | Asp | Phe | Val | Lys | Asn | Val | Asp | Ile | Glu | Leu | Leu | Asn | Gln | Thr | Val |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Thr | Leu | Gln | Arg | Phe | Leu | Phe | Glu | Met | Leu | Lys | Gly | Val | Leu | Lys | Glu |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Glu | Glu | Glu | Val | Ser | Leu | Glu | Gly | Gln | Asp | Trp | Tyr | Thr | Gln | Tyr | Ile |
| | 355 | | | | | | 360 | | | | | 365 | | | |
| Thr | Asn | Ala | Pro | Ile | Glu | Lys | Arg | Leu | Ile | Glu | Glu | Ile | Arg | Val | Thr |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Tyr | Lys | Glu | Ile | Asp | Ala | Gln | Thr | Lys | Lys | Met | Lys | Thr | Asp | Leu | Glu |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Phe | Leu | Glu | Asn | Glu | Val | Arg | Ser | Gly | Arg | Leu | Ser | Val | Ala | Ser | Pro |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ser | Glu | Asp | Pro | Ser | Glu | Thr | Pro | Ile | Phe | Thr | Gln | Gly | Lys | Glu | Phe |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ala | Lys | Leu | Arg | Arg | Gln | Thr | Ser | Gln | Asn | Ile | Ser | Thr | Ile | Tyr | Gly |
| | 435 | | | | | | 440 | | | | | 445 | | | |
| Pro | Asp | Asn | Glu | Asn | Ile | Asp | Pro | Glu | Phe | Ser | Leu | Pro | Trp | Met | Pro |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Lys | Lys | Glu | Glu | Glu | Ile | Asp | His | Ser | Leu | Glu | Pro | Val | Thr | Lys | Leu |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Glu | Pro | Gly | Ser | Arg | Glu | Glu | Leu | Leu | Leu | Val | Glu | Gly | Val | Asn | Pro |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Thr | Leu | Arg | Glu | Leu | Asn | Met | Arg | Ile | Ala | Leu | Leu | Gln | Gln | Gln | Leu |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Ser | Ser | Val | Arg | Lys | Trp | Arg | His | Pro | Arg | Gly | Glu | His | Tyr | Gly | Asn |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Val | Ile | Tyr | Ser | Asp | Thr | Glu | Leu | Asp | Arg | Ile | Gln | Met | Leu | Glu | Gly |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Ala | Phe | Tyr | Asn | His | Leu | Arg | Glu | Ala | Gln | Glu | Glu | Ile | Thr | Gln | Ser |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Leu | Gly | Asp | Leu | Val | Asp | Ile | Gln | Asn | Arg | Ile | Leu | Gly | Ile | Ile | Val |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Glu | Gly | Asp | Ser | Asp | Ser | Arg | Thr | Glu | Glu | Glu | Pro | Gln | Glu | | |
| | | | 580 | | | | | 585 | | | | | 590 | | |

<210> 68
 <211> 580
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 68
 Gly Val Tyr Met Ala Asn Pro Thr Gln Ser Arg Pro Pro Ser Pro Glu
 1 5 10 15
 Ile Ser Ile Glu Glu Leu Glu Leu Gln Glu Leu Ala Gly Ser Ser Asn
 20 25 30
 Thr Glu Thr Ile Ser Asn Thr Pro Pro Ser Cys Ala Ala Thr Ala
 35 40 45
 Glu Glu Val Ser Leu Phe Ile Glu Gly Gly Arg Arg Asn Ser Glu Asp
 50 55 60
 Glu Glu Gly Pro Leu Gly Ser Cys Glu Val Tyr Asp Val Val Cys Ile
 65 70 75 80
 Thr Asn Gln Gly Asp Pro Glu Val Arg Asp His Glu Val Arg Val Met
 85 90 95
 Tyr Ile Asn Gly Ser Gly Arg Thr Gln His Glu Gly Ile Leu Asp Ala
 100 105 110
 Met Asn Ile Cys Asp Leu Arg Gly Glu Pro Val Arg Phe Ile His Asn
 115 120 125
 Ser Gly Tyr Gly Leu Gly Ser Cys Phe Leu Gly Ile Arg Asn Arg Ile
 130 135 140
 Pro Pro Arg Asp Asn Val Ile Ser Gln Ala Ile Gln Ala Arg Trp Asn
 145 150 155 160
 Glu Phe Phe Ile Phe Ala Glu Asn Ala Asn Arg Asp Tyr Ile Val Leu
 165 170 175
 Phe Ser Gly Asn Gly Gly Leu Tyr Leu Gln Val Ala Leu Asp Asn Ser
 180 185 190
 Ile Tyr Ser His His Ile Leu Cys Val Gly Ile Gly Ser Ser Tyr Tyr
 195 200 205
 Ile Gln Gly Asn Tyr Arg Val His Asn Tyr Arg Val Thr Gly Asp Trp
 210 215 220
 Thr Thr Leu Leu Asp Arg Arg Gly Ala Thr Ala Val Asn Thr Thr Thr
 225 230 235 240
 Leu Pro Tyr Ala Asp Ser Ala Glu Gly Leu Phe Leu Pro Ser Val Arg
 245 250 255
 Cys Pro Ser Tyr Gln Trp Ala Leu Arg Cys Gly Glu Gln Cys Leu Ile
 260 265 270
 Met Asp Asn Asn Gln Gln Val Gly Phe Arg Pro Gln Asp Ser Ser Ser
 275 280 285
 Glu Ile Ala Leu Val Val Asn Leu Asn Gln Asp His Ser Thr Trp Thr
 290 295 300
 Arg Leu Ile Glu Trp Ile Asp Arg Gly Asp Ser Gln Ala Val Leu Glu
 305 310 315 320
 Leu Asn Pro Gln Pro Ser His Cys Arg Asp Ile Ala Leu Thr Ala Leu
 325 330 335
 Tyr Ala Thr Thr Arg Ile Ser Ser Leu Leu Gln Glu Cys Leu Met Ile
 340 345 350
 Ser Val Thr Tyr Ala Pro Glu Val Phe Val Thr Tyr Ala Ile Val Thr
 355 360 365
 Gly Tyr Ser Ile Met Thr Leu Arg Tyr Phe Ile Leu Leu Thr Asn
 370 375 380
 Arg Pro Gly Cys Arg Arg His Phe Arg Val Leu Arg Leu Ala Ala Leu
 385 390 395 400
 Gly Leu Gln Ser Leu Gly Phe Leu Thr Val Leu Leu Asp His Ile Asn
 405 410 415
 Val Thr Arg Arg Val Asn Arg Arg Pro Pro Leu Ile Ser Val Ile Phe
 420 425 430

Cys Thr Ala Ser Phe Ala Thr Gly Ser Phe Ile Tyr Val Asp Leu Thr
 435 440 445
 Arg Met Phe Phe Thr Ser Leu Arg Ser Arg Leu Gln Leu Phe Val Gln
 450 455 460
 Arg Arg Leu Thr Gly Arg Gly Leu Pro Leu Arg Arg Val Phe Val Asn
 465 470 475 480
 His Leu Asp Ser Leu Arg Phe Ser Gln Asn Ala Leu Ile Thr Phe His
 485 490 495
 Gly Gly Leu Phe Met Pro Leu Ile Ile Gly Phe Phe Asn Gln Leu Val
 500 505 510
 Ile Gln Val Pro Arg Val Val Ile Arg Pro Asn Thr Thr Ala Val Tyr
 515 520 525
 Asp Leu Asn Gln Thr Ser Gln Glu Ala Trp Asp Ser Gly Asp Val Leu
 530 535 540
 Ala Ile Gly Gln Thr Ile Asn Phe Leu Leu Cys Met Ile Leu Leu Val
 545 550 555 560
 Ile Asn Thr Phe Phe Phe Val Arg Ser Val Arg Arg Asn Leu His Arg
 565 570 575
 Arg Pro His Arg
 580

<210> 69

<211> 378

<212> PRT

<213> Chlamydia pneumoniae

<400> 69

Lys Gly Ser Gly Tyr Ser Tyr Arg Gly Pro Pro Met Ala Val Glu Gly
 1 5 10 15
 Arg Val Asn Ser Ser Gln Ala Leu Asn Gln Asp Cys Gln Glu Val Leu
 20 25 30
 Ala Asn Lys Gln Ser Lys Gly Leu Leu Arg Cys Arg Ile Leu Ser Ile
 35 40 45
 Val Val Ala Val Ile Thr Phe Ile Ala Gly Val Val Leu Ile Ala Leu
 50 55 60
 Thr Leu Ala Ser Ile Leu Thr Ser Val Pro Tyr Leu Ala Leu Gly Val
 65 70 75 80
 Phe Leu Leu Ile Val Thr Leu Gly Cys Ile Ile Phe Ala Leu Cys Ser
 85 90 95
 Glu Lys Ile Lys Lys Val Pro Pro Thr Pro Ile Ser His Lys Glu Glu
 100 105 110
 Ile Ile Ala Trp Phe Glu Glu Arg Lys Asn Ile Asp Met Glu Lys Glu
 115 120 125
 Lys Glu Asp Pro Glu His Phe Gly Arg Thr Ala Thr Asp Ile Pro Met
 130 135 140
 Arg Ser Ala Leu Asp Gln Phe Asn His Ser Cys His His Ile His Glu
 145 150 155 160
 Ser Pro Ala Leu Thr Glu Thr Tyr Arg Ser His Gln Asp Val Leu Leu
 165 170 175
 Phe Lys Asp Trp Cys Pro Val Thr Leu Pro Asp Val Thr Ser Glu Glu
 180 185 190
 Glu Val Leu Ile Arg Ser Val Val Gly Ser Tyr Leu Leu Met Glu Ala
 195 200 205
 Cys Val Pro Lys Val Ser Met Leu Ile Asp Glu Leu His Asn Lys Leu
 210 215 220
 Lys Ser Pro Ser Glu Arg Glu Cys Leu Phe Ile Asp Lys Lys Thr Leu
 225 230 235 240
 Gln Arg Lys Ala Ser Phe Leu Phe Thr Gln Lys Asp Leu Ala Thr Phe
 245 250 255
 Phe Leu Ala Tyr Thr Arg Val Asn Asp Gly His Leu Ala Pro Phe Arg
 260 265 270

Ala Gly Ala Lys Trp Ile Leu Ile His Tyr Val Arg Leu Arg Arg Gln
275 280 285
His Asn Gln Asn Asp Phe Phe Thr Pro Gly His Ser Cys Tyr Tyr Ala
290 295 300
Arg Leu Ala Phe Asn Gln Thr Gln Arg Leu Tyr His Gln Leu Phe Asn
305 310 315 320
Val Glu Lys Leu Arg Ser Ile Tyr Ala Asn Met Asp Lys Asp Pro Leu
325 330 335
Cys His Pro Trp Ala Phe Ile Pro Ile Tyr Asp Leu Leu Lys Thr Glu
340 345 350
Asp His Gly Asp Gly Phe Leu Glu Gln Gln Glu Asp Arg Glu Tyr Pro
355 360 365
Ser Arg Ala Ala Gln Asp Gln Phe Trp Gly
370 375

<210> 70
<211> 193
<212> PRT
<213> Chlamydia pneumoniae

<400> 70
Ser Phe Met Ile Lys Lys Phe Phe Ile Tyr Ser Leu Ile Phe Ser Cys
1 5 10 15
Ser Phe Ser Ala Pro Leu Lys Gly Ile Cys Asn Glu Asp Val Ser Ser
20 25 30
Gln Ser Arg Ile Glu Glu Asp Pro Glu Val Leu Ile Thr Gln Leu Asn
35 40 45
Glu Leu Ile Glu Thr Pro Ile Glu Glu Gly Lys Glu Ile Arg Asn Glu
50 55 60
Leu Gln Ala Ile Ser Asp Gly Gln Lys Ser Ser Glu Glu Ile Glu Glu
65 70 75 80
Ser Cys Gly Thr Ser Asp Ser Glu Gly Leu Ser Glu Lys Thr Asp Lys
85 90 95
Glu Ser Ser Asn Glu Tyr Val Leu Asp Phe Phe Asp Ser Met Val Gln
100 105 110
Arg Leu Glu Gly Ile Ser Lys Met Cys Gln Ser Gly Gln Val Ala Gln
115 120 125
Ile Ile Asp Cys Phe Asn Arg Glu Phe Asp Ile Arg Asn Arg Glu Leu
130 135 140
Glu Leu Lys Asn Arg Glu Leu Glu Leu Arg Glu Lys Asp Leu Glu Phe
145 150 155 160
Lys Lys Ser Ile Leu Asp Trp Asn Lys Glu Lys Val Ser Arg Glu Leu
165 170 175
Ala Phe Gln Arg Glu Gln Asp Ile Lys Gln Thr Leu Met Leu Leu Lys
180 185 190
Lys

<210> 71
<211> 632
<212> PRT
<213> Chlamydia pneumoniae

<400> 71
Leu Asn Phe Leu Tyr Val Tyr Leu Leu Ile Phe Asn Leu Gly Ile Met
1 5 10 15
Thr Thr Pro Pro Pro Ser Arg Ser Ser Pro Pro Pro Tyr Asp Trp
20 25 30
Ile Glu Leu Gln Asp Leu Gly Asn Thr Asn Asn Asn Ser Ser Arg Ala
35 40 45

401

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Arg | Ile | Thr | Asp | Leu | Thr | Leu | Ala | Ser | Met | Arg | Tyr | Ala | Ile | Val |
| 530 | | | | | | 535 | | | | | 540 | | | | |
| Phe | Pro | Ser | Ile | Val | Ser | Ser | Cys | Leu | Leu | Thr | Ala | Leu | Ala | His | Ala |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Asn | Thr | Asn | Ile | Leu | Ala | Leu | Asp | Pro | Tyr | Arg | Leu | Ile | Glu | Ser | Gly |
| | | | 565 | | | | | | 570 | | | | | 575 | |
| Asp | Leu | Arg | Arg | Pro | Ala | Phe | Asn | Asp | Asp | Glu | Met | Gln | Gln | Ala | Asp |
| | | 580 | | | | | | 585 | | | | | 590 | | |
| Asn | Pro | Trp | Asp | Ala | Tyr | Ser | Ile | Gly | Leu | Val | Ile | Asn | Thr | Cys | Ile |
| | 595 | | | | | | 600 | | | | | 605 | | | |
| Tyr | Met | Leu | Ile | Leu | Phe | Ala | Asn | Leu | Ile | Phe | Met | Val | Tyr | Ser | Val |
| 610 | | | | | 615 | | | | | | 620 | | | | |
| Arg | Arg | Tyr | His | Arg | Ser | Arg | Arg | | | | | | | | |
| 625 | | | | | 630 | | | | | | | | | | |

<210> 72
 <211> 64
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 72 | | | | | | | | | | | | | | | |
| Tyr | Lys | Val | Gly | Leu | Phe | His | Leu | Lys | Asn | Gln | Asn | Phe | Phe | Ser | Asn |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gln | Ser | Arg | Thr | Tyr | Glu | Gln | Arg | Phe | Pro | Lys | Val | Ser | Pro | His | Phe |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Ser | Ile | Leu | Arg | Leu | Gln | Ser | Val | Gly | Phe | Ser | Ser | Gln | Gly | Thr |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Leu | Ile | Ser | Phe | Arg | Asp | Thr | Glu | Leu | Lys | Arg | Asp | Leu | Tyr | Ile |
| 50 | | | | | | 55 | | | | | 60 | | | | |

<210> 73
 <211> 156
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 73 | | | | | | | | | | | | | | | |
| Ile | Lys | Ser | Leu | Arg | Ser | Ile | Leu | Glu | Phe | Ile | Cys | Pro | Leu | Gln | His |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ala | Arg | Cys | Leu | Lys | Lys | Gln | His | Lys | Ile | Ile | Glu | Glu | Leu | Phe | Pro |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Pro | Phe | Gln | Lys | Asp | His | Leu | Tyr | Leu | Lys | Leu | Met | Glu | Asn | Ser |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ser | Ser | Arg | Asp | Ala | Phe | Asp | Lys | Lys | Arg | Met | Leu | Lys | Glu | Asn | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Val | Val | Gly | Cys | Gln | Ser | Asp | Leu | Tyr | Leu | Tyr | Glu | Val | Tyr | Gln | Asp |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Gly | Ile | Leu | Phe | Phe | Phe | Thr | Tyr | Thr | Lys | Ala | Leu | Met | Ser | Ser | Gly |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Ile | Ala | Ser | Leu | Phe | Thr | Glu | Val | Tyr | Ser | Gly | Glu | Thr | Pro | Ser | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ile | Leu | Thr | Cys | Lys | Pro | Ile | Phe | Phe | Gln | Arg | Leu | Thr | Pro | Tyr | Leu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ser | Phe | Gly | Arg | Leu | Asn | Gly | Gly | Glu | Ser | Leu | Tyr | Met | Arg | Met | Lys |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gln | Ile | Ala | Val | Gln | Tyr | Leu | Lys | Pro | Pro | Gln | Thr | | | | |
| 145 | | | | | | 150 | | | | 155 | | | | | |

<210> 74
 <211> 365
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 74

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Gly | Tyr | Arg | Ser | Thr | Lys | Thr | Ser | Val | Tyr | Lys | Glu | Lys | Val | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Leu | Ile | Tyr | Cys | Leu | Leu | Phe | Tyr | Phe | Phe | His | Tyr | Arg | Met | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Thr | Pro | Leu | Ser | Ser | Gly | Gly | Ile | Ser | Pro | Ser | Asp | Gln | Tyr | Val | Pro |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gln | Glu | Leu | Phe | Cys | Asp | Arg | Leu | Ser | Ser | Ser | Arg | Ser | Asn | Ser | Pro |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Asp | Ser | Asn | Ala | Ser | Gly | Asp | Ser | Pro | Ile | Val | Ser | Pro | Pro | Ile | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Ala | Leu | Val | Ala | Leu | Thr | Asp | Leu | Lys | Leu | Val | Pro | Tyr | Asn | Gln | Asn |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ser | Phe | Ser | Trp | Thr | Thr | Arg | Leu | Lys | Asn | Ala | Val | Glu | Lys | Ile | Gly |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Phe | Leu | Gln | Arg | Asn | Trp | Lys | Tyr | Ile | Leu | Leu | Tyr | Ile | Leu | Ala |
| | | 115 | | | | | 120 | | | | | | 125 | | |
| Trp | Ala | Leu | Ile | Leu | Val | Cys | His | His | Thr | Val | Ala | Leu | Thr | Leu | Thr |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ile | Trp | Leu | Gly | Val | Gly | Leu | Gly | Ile | Gly | Val | Val | Phe | Gly | Ile | Phe |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Thr | Ala | Thr | Cys | Leu | Asp | Lys | Glu | Asn | Lys | His | Arg | His | Val | Asn | Ser |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Trp | Asn | Leu | Ile | Asn | His | Gly | Ile | Leu | Gln | Leu | Asp | Pro | Asn | Gly |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Thr | Arg | Gln | Ile | Leu | Leu | Ala | Thr | Met | Ile | Ala | Ser | Ile | Ser | Ala | Leu |
| | | 195 | | | | | 200 | | | | | | 205 | | |
| Ile | Tyr | Ala | Val | Pro | Gln | Ala | Val | Gly | Leu | Val | Ile | Gly | Phe | Ser | Ile |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gly | Asn | Gln | Leu | Ser | Ile | Asn | Thr | Val | Tyr | Gly | Ala | Arg | Leu | Gly | Asp |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Glu | Ala | Thr | Tyr | Ala | Ile | Asp | Arg | Lys | Ala | His | Lys | Lys | Arg | Ile | Glu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Asn | Ile | Glu | Gln | Ala | Ile | Asn | Gln | His | Gln | Ile | Ile | Lys | His | Gln | Met |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ile | Asn | Gln | Lys | Gln | Leu | Asn | Ala | Leu | Ile | Glu | Ile | Asn | Arg | Asn | Asn |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Gln | Thr | Asp | Pro | Ala | Thr | Ala | Asn | Leu | Leu | Ala | Ser | Leu | Lys | Leu | Asn |
| | | 290 | | | | | 295 | | | | | 300 | | | |
| Leu | Asn | Gln | Pro | Met | Pro | Tyr | Cys | Phe | Ser | Met | Pro | Glu | Cys | Gly | Val |
| 305 | | | | | | 310 | | | | 315 | | | | | 320 |
| Thr | Ser | Ser | Tyr | Leu | Asp | Leu | Asn | Asn | Asn | Ser | Pro | Asp | Asp | Ile | Ile |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ala | Arg | Ala | Asp | Gln | Cys | Ile | Met | Thr | Leu | Ser | Gln | Thr | Leu | Gln | Gln |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ile | Lys | Lys | Glu | Pro | Asp | Arg | Ile | Ile | Glu | Ser | Asn | His | | | |
| | | 355 | | | | | 360 | | | | | 365 | | | |

<210> 75

<211> 74

<212> PRT

<213> Chlamydia pneumoniae

<400> 75

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Met | Ala | Lys | Lys | Glu | Asp | Thr | Leu | Val | Leu | Glu | Gly | Lys | Val | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Glu | Leu | Leu | Pro | Gly | Met | His | Phe | Arg | Val | Ile | Leu | Glu | Asn | Gly | Met |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Pro | Val | Thr | Ala | His | Leu | Cys | Gly | Lys | Met | Arg | Met | Ser | Asn | Ile | Arg |
| | | 35 | | | | | 40 | | | | | 45 | | | |

Leu Leu Val Gly Asp Arg Val Thr Val Glu Met Ser Ala Tyr Asp Leu
 50 55 60
 Thr Lys Ala Arg Val Val Tyr Arg His Arg
 65 70

<210> 76
 <211> 398
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 76
 Glu Asp Phe Glu Met Ser Lys Glu Thr Phe Gln Arg Asn Lys Pro His
 1 5 10 15
 Ile Asn Ile Gly Thr Ile Gly His Val Asp His Gly Lys Thr Thr Leu
 20 25 30
 Thr Ala Ala Ile Thr Arg Ala Leu Ser Gly Asp Gly Leu Ala Ser Phe
 35 40 45
 Arg Asp Tyr Ser Ser Ile Asp Asn Thr Pro Glu Glu Lys Ala Arg Gly
 50 55 60
 Ile Thr Ile Asn Ala Ser His Val Glu Tyr Glu Thr Pro Asn Arg His
 65 70 75 80
 Tyr Ala His Val Asp Cys Pro Gly His Ala Asp Tyr Val Lys Asn Met
 85 90 95
 Ile Thr Gly Ala Ala Gln Met Asp Gly Ala Ile Leu Val Val Ser Ala
 100 105 110
 Thr Asp Gly Ala Met Pro Gln Thr Lys Glu His Ile Leu Leu Ala Arg
 115 120 125
 Gln Val Gly Val Pro Tyr Ile Val Val Phe Leu Asn Lys Val Asp Met
 130 135 140
 Ile Ser Gln Glu Asp Ala Glu Leu Ile Asp Leu Val Glu Met Glu Leu
 145 150 155 160
 Ser Glu Leu Leu Glu Glu Lys Gly Tyr Lys Gly Cys Pro Ile Ile Arg
 165 170 175
 Gly Ser Ala Leu Lys Ala Leu Glu Gly Asp Ala Asn Tyr Ile Glu Lys
 180 185 190
 Val Arg Glu Leu Met Gln Ala Val Asp Asp Asn Ile Pro Thr Pro Glu
 195 200 205
 Arg Glu Ile Asp Lys Pro Phe Leu Met Pro Ile Glu Asp Val Phe Ser
 210 215 220
 Ile Ser Gly Arg Gly Thr Val Val Thr Gly Arg Ile Glu Arg Gly Ile
 225 230 235 240
 Val Lys Val Ser Asp Lys Val Gln Leu Val Gly Leu Gly Glu Thr Lys
 245 250 255
 Glu Thr Ile Val Thr Gly Val Glu Met Phe Arg Lys Glu Leu Pro Glu
 260 265 270
 Gly Arg Ala Gly Glu Asn Val Gly Leu Leu Leu Arg Gly Ile Gly Lys
 275 280 285
 Asn Asp Val Glu Arg Gly Met Val Val Cys Gln Pro Asn Ser Val Lys
 290 295 300
 Pro His Thr Lys Phe Lys Ser Ala Val Tyr Val Leu Gln Lys Glu Glu
 305 310 315 320
 Gly Gly Arg His Lys Pro Phe Phe Ser Gly Tyr Arg Pro Gln Phe Phe
 325 330 335
 Phe Arg Thr Thr Asp Val Thr Gly Val Val Thr Leu Pro Glu Gly Thr
 340 345 350
 Glu Met Val Met Pro Gly Asp Asn Val Glu Leu Asp Val Glu Leu Ile
 355 360 365
 Gly Thr Val Ala Leu Glu Glu Gly Met Arg Phe Ala Ile Arg Glu Gly
 370 375 380
 Gly Arg Thr Ile Gly Ala Gly Thr Ile Ser Lys Ile Asn Ala
 385 390 395

<210> 77
 <211> 88
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 77
 Ser Arg Ser Trp Phe Met Lys Gln Gln His Asn Arg Lys Ala Leu Ser
 1 5 10 15
 Arg Lys Ile Gly Thr Val Lys Lys Gln Ala Lys Phe Ala Gly Ser Phe
 20 25 30
 Leu Asp Glu Ile Lys Lys Ile Glu Trp Val Ser Lys His Asp Leu Lys
 35 40 45
 Lys Tyr Ile Lys Val Val Leu Ile Ser Ile Phe Gly Phe Gly Phe Ala
 50 55 60
 Ile Tyr Phe Val Asp Leu Val Leu Arg Lys Ser Ile Thr Cys Leu Asp
 65 70 75 80
 Gly Ile Thr Thr Phe Leu Phe Gly
 85

<210> 78
 <211> 190
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 78
 Gln Pro Phe Cys Ser Val Asn Cys Met Tyr Lys Trp Tyr Val Val Gln
 1 5 10 15
 Val Phe Thr Ala Gln Glu Lys Lys Val Lys Lys Ala Leu Glu Asp Phe
 20 25 30
 Lys Glu Ser Ser Gly Met Thr Asp Phe Ile Gln Glu Ile Ile Leu Pro
 35 40 45
 Ile Glu Asn Val Met Glu Val Lys Lys Gly Glu His Lys Val Val Glu
 50 55 60
 Lys Tyr Ile Trp Pro Gly Tyr Leu Leu Val Lys Met His Leu Thr Asp
 65 70 75 80
 Glu Ser Trp Leu Tyr Val Lys Ser Thr Ala Gly Ile Val Glu Phe Leu
 85 90 95
 Gly Gly Gly Val Pro Val Ala Leu Ser Glu Asp Glu Val Arg Ser Ile
 100 105 110
 Leu Thr Asp Ile Glu Glu Lys Lys Ser Gly Val Val Gln Lys His Gln
 115 120 125
 Phe Glu Val Gly Ser Arg Val Lys Ile Asn Asp Gly Val Phe Val Asn
 130 135 140
 Phe Ile Gly Met Val Ser Glu Val Phe His Asp Lys Gly Arg Leu Ser
 145 150 155 160
 Val Met Val Ser Ile Phe Gly Arg Glu Thr Arg Val Asp Asp Leu Glu
 165 170 175
 Phe Trp Gln Val Glu Glu Val Ala Pro Gly Gln Glu Ser Glu
 180 185 190

<210> 79
 <211> 160
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 79
 Phe Phe Val Ser Tyr Pro Leu Phe Val Glu Val Ser Gln Cys Lys Val
 1 5 10 15
 Arg Phe Ser Met Ser Val Lys Lys Val Ile Lys Ile Ile Lys Leu Gln
 20 25 30

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Pro | Gly | Gly | Lys | Ala | Asn | Pro | Ala | Pro | Pro | Ile | Gly | Pro | Ala | Leu |
| | 35 | | | | | 40 | | | | | 45 | | | | |
| Gly | Ala | Ala | Gly | Val | Asn | Ile | Met | Gly | Phe | Cys | Lys | Glu | Phe | Asn | Ala |
| | 50 | | | | 55 | | | | | 60 | | | | | |
| Ala | Thr | Gln | Asp | Lys | Pro | Gly | Asp | Leu | Leu | Pro | Val | Val | Ile | Thr | Val |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Tyr | Ala | Asp | Lys | Thr | Phe | Thr | Phe | Ile | Thr | Lys | Gln | Pro | Pro | Val | Ser |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Ser | Leu | Ile | Lys | Lys | Thr | Leu | Asn | Leu | Glu | Ser | Gly | Ser | Lys | Ile | Pro |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asn | Arg | Asn | Lys | Val | Gly | Lys | Leu | Thr | Gln | Ala | Gln | Val | Glu | Ala | Ile |
| | | | 115 | | | | 120 | | | | | 125 | | | |
| Ala | Glu | Gln | Lys | Met | Lys | Asp | Met | Asp | Ile | Val | Leu | Leu | Glu | Ser | Ala |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Lys | Arg | Met | Val | Glu | Gly | Thr | Ala | Arg | Ser | Met | Gly | Ile | Asp | Val | Glu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |

<210> 80
 <211> 236
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Ser | Cys | Arg | Ile | Met | Thr | Lys | His | Gly | Lys | Arg | Ile | Arg | Gly | Ile | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Lys | Asn | Tyr | Asp | Phe | Ser | Lys | Ser | Tyr | Ser | Leu | Arg | Glu | Ala | Ile | Asp |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ile | Leu | Lys | Gln | Cys | Pro | Pro | Val | Arg | Phe | Asp | Gln | Thr | Val | Asp | Val |
| | 35 | | | | | | 40 | | | | 45 | | | | |
| Ser | Ile | Lys | Leu | Gly | Ile | Asp | Pro | Lys | Lys | Ser | Asp | Gln | Gln | Ile | Arg |
| 50 | | | | | | 55 | | | | | 60 | | | | |
| Gly | Ala | Val | Phe | Leu | Pro | Asn | Gly | Thr | Gly | Lys | Thr | Leu | Arg | Ile | Leu |
| 65 | | | | 70 | | | | | | 75 | | | | 80 | |
| Val | Phe | Ala | Ser | Gly | Asn | Lys | Val | Lys | Glu | Ala | Val | Glu | Ala | Gly | Ala |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Asp | Phe | Met | Gly | Ser | Asp | Asp | Leu | Val | Glu | Lys | Ile | Lys | Ser | Gly | Trp |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Glu | Phe | Asp | Val | Ala | Val | Ala | Thr | Pro | Asp | Met | Met | Arg | Glu | Val |
| | | | 115 | | | | 120 | | | | | 125 | | | |
| Gly | Lys | Leu | Gly | Lys | Val | Leu | Gly | Pro | Arg | Asn | Leu | Met | Pro | Thr | Pro |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Lys | Thr | Gly | Thr | Val | Thr | Thr | Asp | Val | Ala | Lys | Ala | Ile | Ser | Glu | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Arg | Lys | Gly | Lys | Ile | Glu | Phe | Lys | Ala | Asp | Arg | Ala | Gly | Val | Cys | Asn |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Val | Gly | Val | Gly | Lys | Leu | Ser | Phe | Glu | Ser | Ser | Gln | Ile | Lys | Glu | Asn |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ile | Glu | Ala | Leu | Ser | Ser | Ala | Leu | Ile | Lys | Ala | Lys | Pro | Pro | Ala | Ala |
| | | | 195 | | | | 200 | | | | | 205 | | | |
| Lys | Gly | Gln | Tyr | Leu | Val | Ser | Phe | Thr | Ile | Ser | Ser | Thr | Met | Gly | Pro |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gly | Ile | Ser | Ile | Asp | Thr | Arg | Glu | Leu | Met | Ala | Ser | | | | |
| 225 | | | | | 230 | | | | | 235 | | | | | |

<210> 81
 <211> 173
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 81
 Arg Gly Lys Met Lys Gln Glu Lys Thr Leu Leu Leu Gln Glu Val Glu
 1 5 10 15
 Asp Lys Ile Ser Ala Ala Gln Gly Phe Ile Leu Leu Arg Tyr Leu Arg
 20 25 30
 Phe Thr Ala Ala Tyr Ser Arg Glu Phe Arg Asn Ser Leu Ser Gly Val
 35 40 45
 Ser Ala Glu Phe Glu Val Leu Lys Lys Arg Ile Phe Phe Lys Ala Ile
 50 55 60
 Glu Ala Ala Gly Leu Glu Val Asp Cys Ser Asp Thr Asp Gly His Leu
 65 70 75 80
 Gly Val Val Phe Ser Cys Gly Asp Pro Val Ser Ala Ala Lys Gln Val
 85 90 95
 Leu Asp Phe Asn Lys Gln His Lys Asp Ser Leu Val Phe Leu Ala Gly
 100 105 110
 Arg Met Asp Asn Ala Ser Leu Ser Gly Ala Glu Val Glu Ala Val Ala
 115 120 125
 Lys Leu Pro Ser Leu Lys Glu Leu Arg Gln Gln Val Val Gly Leu Phe
 130 135 140
 Ala Ala Pro Met Ser Gln Val Val Gly Ile Met Asn Ser Val Leu Ser
 145 150 155 160
 Gly Val Ile Ser Cys Val Asp Gln Lys Ala Gly Lys Asn
 165 170

<210> 82
 <211> 134
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 82
 Val Arg Val Thr Lys Val Thr Thr Glu Ser Leu Glu Thr Leu Val Glu
 1 5 10 15
 Lys Leu Ser Asn Leu Thr Val Leu Glu Leu Ser Gln Leu Lys Lys Leu
 20 25 30
 Leu Glu Glu Lys Trp Asp Val Thr Ala Ser Ala Pro Val Val Ala Val
 35 40 45
 Ala Ala Gly Gly Gly Gly Glu Ala Pro Val Ala Ala Glu Pro Thr Glu
 50 55 60
 Phe Ala Val Thr Leu Glu Asp Val Pro Ala Asp Lys Lys Ile Gly Val
 65 70 75 80
 Leu Lys Val Val Arg Glu Val Thr Gly Leu Ala Leu Lys Glu Ala Lys
 85 90 95
 Glu Met Thr Glu Gly Leu Pro Lys Thr Val Lys Glu Lys Thr Ser Lys
 100 105 110
 Ser Asp Ala Glu Asp Thr Val Lys Lys Leu Gln Asp Ala Gly Ala Lys
 115 120 125
 Ala Ser Phe Lys Gly Leu
 130

<210> 83
 <211> 1266
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 83
 Phe Arg Glu Ile Leu Ser His Gln Asn Ser Arg Arg Thr Arg Met Leu
 1 5 10 15
 Lys Cys Pro Glu Arg Val Ser Val Lys Lys Lys Glu Asp Ile Pro Asp
 20 25 30
 Leu Pro Asn Leu Ile Glu Ile Gln Ile Lys Ser Tyr Lys Gln Phe Leu
 35 40 45

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Ile | Gly | Lys | Leu | Ala | Glu | Glu | Arg | Glu | Asn | Ile | Gly | Leu | Glu | Glu |
| 50 | | | | | | 55 | | | | 60 | | | | | |
| Val | Phe | Arg | Glu | Ile | Phe | Pro | Ile | Lys | Ser | Tyr | Asn | Glu | Ala | Thr | Val |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Glu | Tyr | Leu | Ser | Tyr | Asn | Leu | Gly | Val | Pro | Lys | Tyr | Ser | Pro | Glu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Glu | Cys | Ile | Arg | Arg | Gly | Ile | Thr | Tyr | Ser | Val | Thr | Leu | Lys | Val | Arg |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Phe | Arg | Leu | Thr | Asp | Glu | Thr | Gly | Ile | Lys | Glu | Glu | Glu | Val | Tyr | Met |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Thr | Ile | Pro | Leu | Met | Thr | Asp | Lys | Gly | Thr | Phe | Ile | Ile | Asn | Gly |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ala | Glu | Arg | Val | Val | Val | Ser | Gln | Val | His | Arg | Ser | Pro | Gly | Ile | Asn |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Phe | Glu | Gln | Glu | Lys | His | Ser | Lys | Gly | Asn | Ile | Leu | Phe | Ser | Phe | Arg |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ile | Ile | Pro | Tyr | Arg | Gly | Ser | Trp | Leu | Glu | Ala | Ile | Phe | Asp | Ile | Asn |
| | | 180 | | | | | 185 | | | | | | 190 | | |
| Asp | Leu | Ile | Tyr | Ile | His | Ile | Asp | Arg | Lys | Lys | Arg | Arg | Arg | Lys | Ile |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Leu | Ala | Ile | Thr | Phe | Ile | Arg | Ala | Leu | Gly | Tyr | Ser | Ser | Asp | Ala | Asp |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ile | Ile | Glu | Glu | Phe | Phe | Thr | Ile | Gly | Glu | Ser | Ser | Leu | Arg | Ser | Glu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Lys | Asp | Phe | Ala | Leu | Leu | Val | Gly | Arg | Ile | Leu | Ala | Asp | Asn | Ile | Ile |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Asp | Glu | Ala | Ser | Ser | Leu | Val | Tyr | Gly | Lys | Ala | Gly | Glu | Lys | Leu | Ser |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Thr | Ala | Met | Leu | Lys | Arg | Met | Leu | Asp | Ala | Gly | Ile | Ala | Ser | Val | Lys |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ile | Ala | Val | Asp | Ala | Asp | Glu | Asn | His | Pro | Ile | Ile | Lys | Met | Leu | Ala |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Lys | Asp | Pro | Thr | Asp | Ser | Tyr | Glu | Ala | Ala | Leu | Lys | Asp | Phe | Tyr | Arg |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Arg | Leu | Arg | Pro | Gly | Glu | Pro | Ala | Thr | Leu | Ala | Asn | Ala | Arg | Ser | Thr |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ile | Met | Arg | Leu | Phe | Phe | Asp | Pro | Lys | Arg | Tyr | Asn | Leu | Gly | Arg | Val |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Gly | Arg | Tyr | Lys | Leu | Asn | Arg | Lys | Leu | Gly | Phe | Ser | Ile | Asp | Asp | Glu |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ala | Leu | Ser | Gln | Val | Thr | Leu | Arg | Lys | Glu | Asp | Val | Ile | Gly | Ala | Leu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Lys | Tyr | Leu | Ile | Arg | Leu | Lys | Met | Gly | Asp | Glu | Lys | Ala | Cys | Val | Asp |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Asp | Ile | Asp | His | Leu | Ala | Asn | Arg | Arg | Val | Arg | Ser | Val | Gly | Glu | Leu |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ile | Gln | Asn | Gln | Cys | Arg | Ser | Gly | Leu | Ala | Arg | Met | Glu | Lys | Ile | Val |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Arg | Glu | Arg | Met | Asn | Leu | Phe | Asp | Phe | Ser | Ser | Asp | Thr | Leu | Thr | Pro |
| | | | 435 | | | | 440 | | | | | 445 | | | |
| Gly | Lys | Val | Val | Ser | Ala | Lys | Gly | Leu | Ala | Ser | Val | Leu | Lys | Asp | Phe |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Phe | Gly | Arg | Ser | Gln | Leu | Ser | Gln | Phe | Met | Asp | Gln | Thr | Asn | Pro | Val |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Ala | Glu | Leu | Thr | His | Lys | Arg | Arg | Leu | Ser | Ala | Leu | Gly | Pro | Gly | Gly |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Leu | Asn | Arg | Glu | Arg | Ala | Gly | Phe | Glu | Val | Arg | Asp | Val | His | Ala | Ser |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| His | Tyr | Gly | Arg | Ile | Cys | Pro | Ile | Glu | Thr | Pro | Glu | Gly | Pro | Asn | Ile |
| | | 515 | | | | | 520 | | | | | | 525 | | |

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| Gly | Leu | Ile | Thr | Ser | Leu | Ser | Ser | Phe | Ala | Lys | Ile | Asn | Glu | Phe | Gly | 530 | 535 | 540 |
| Phe | Ile | Glu | Thr | Pro | Tyr | Arg | Ile | Val | Arg | Asp | Gly | Ile | Val | Thr | Asp | 545 | 550 | 555 |
| Glu | Ile | Glu | Tyr | Met | Thr | Ala | Asp | Val | Glu | Glu | Glu | Cys | Val | Ile | Ala | 565 | 570 | 575 |
| Gln | Ala | Ser | Ala | Ser | Leu | Asp | Glu | Tyr | Asn | Met | Phe | Thr | Glu | Pro | Val | 580 | 585 | 590 |
| Cys | Trp | Val | Arg | Tyr | Ala | Gly | Glu | Ala | Phe | Glu | Ala | Asp | Thr | Ser | Thr | 595 | 600 | 605 |
| Val | Thr | His | Met | Asp | Val | Ser | Pro | Lys | Gln | Leu | Val | Ser | Ile | Val | Thr | 610 | 615 | 620 |
| Gly | Leu | Ile | Pro | Phe | Leu | Glu | His | Asp | Asp | Ala | Asn | Arg | Ala | Leu | Met | 625 | 630 | 635 |
| Gly | Ser | Asn | Met | Gln | Arg | Gln | Ala | Val | Pro | Leu | Leu | Lys | Thr | Glu | Ala | 645 | 650 | 655 |
| Pro | Val | Val | Gly | Thr | Gly | Leu | Glu | Cys | Arg | Ala | Ala | Lys | Asp | Ser | Gly | 660 | 665 | 670 |
| Ala | Ile | Val | Val | Ala | Glu | Glu | Asp | Gly | Val | Val | Asp | Phe | Val | Asp | Gly | 675 | 680 | 685 |
| Tyr | Lys | Val | Val | Val | Ala | Ala | Lys | His | Asn | Pro | Thr | Ile | Lys | Arg | Thr | 690 | 695 | 700 |
| Tyr | His | Leu | Lys | Lys | Phe | Leu | Arg | Ser | Asn | Ser | Gly | Thr | Cys | Ile | Asn | 705 | 710 | 715 |
| Gln | Gln | Pro | Leu | Cys | Ala | Val | Gly | Asp | Val | Ile | Thr | Lys | Gly | Asp | Val | 725 | 730 | 735 |
| Ile | Ala | Asp | Gly | Pro | Ala | Thr | Asp | Arg | Gly | Glu | Leu | Ala | Leu | Gly | Lys | 740 | 745 | 750 |
| Asn | Val | Leu | Val | Ala | Phe | Met | Pro | Trp | Tyr | Gly | Tyr | Asn | Phe | Glu | Asp | 755 | 760 | 765 |
| Ala | Ile | Ile | Ile | Ser | Glu | Lys | Leu | Ile | Arg | Glu | Asp | Ala | Tyr | Thr | Ser | 770 | 775 | 780 |
| Ile | Tyr | Ile | Glu | Glu | Phe | Glu | Leu | Thr | Ala | Arg | Asp | Thr | Lys | Leu | Gly | 785 | 790 | 795 |
| Lys | Glu | Glu | Ile | Thr | Arg | Asp | Ile | Pro | Asn | Val | Ser | Asp | Glu | Val | Leu | 805 | 810 | 815 |
| Ala | Asn | Leu | Gly | Glu | Asp | Gly | Ile | Ile | Arg | Ile | Gly | Ala | Glu | Val | Lys | 820 | 825 | 830 |
| Pro | Gly | Asp | Ile | Leu | Val | Gly | Lys | Ile | Thr | Pro | Lys | Ser | Glu | Thr | Glu | 835 | 840 | 845 |
| Leu | Ala | Pro | Glu | Glu | Arg | Leu | Leu | Arg | Ala | Ile | Phe | Gly | Glu | Lys | Ala | 850 | 855 | 860 |
| Ala | Asp | Val | Lys | Asp | Ala | Ser | Leu | Thr | Val | Pro | Pro | Gly | Thr | Glu | Gly | 865 | 870 | 875 |
| Val | Val | Met | Asp | Val | Lys | Val | Phe | Ser | Arg | Lys | Asp | Arg | Leu | Ser | Lys | 885 | 890 | 895 |
| Ser | Asp | Asp | Glu | Leu | Val | Glu | Glu | Ala | Val | His | Leu | Lys | Asp | Leu | Gln | 900 | 905 | 910 |
| Lys | Gly | Tyr | Lys | Asn | Gln | Val | Ala | Thr | Leu | Lys | Thr | Glu | Tyr | Arg | Glu | 915 | 920 | 925 |
| Lys | Leu | Gly | Ala | Leu | Leu | Leu | Asn | Glu | Lys | Ala | Pro | Ala | Ala | Ile | Ile | 930 | 935 | 940 |
| His | Arg | Arg | Thr | Ala | Glu | Ile | Val | Val | His | Glu | Gly | Leu | Leu | Phe | Asp | 945 | 950 | 955 |
| Gln | Glu | Thr | Ile | Glu | Arg | Ile | Glu | Gln | Glu | Asp | Leu | Val | Asp | Leu | Leu | 965 | 970 | 975 |
| Met | Pro | Asn | Cys | Glu | Met | Tyr | Glu | Val | Leu | Lys | Gly | Leu | Leu | Ser | Asp | 980 | 985 | 990 |
| Tyr | Glu | Thr | Ala | Leu | Gln | Arg | Leu | Glu | Ile | Asn | Tyr | Lys | Thr | Glu | Val | 995 | 1000 | 1005 |

Glu His Ile Arg Glu Gly Asp Ala Asp Leu Asp His Gly Val Ile Arg
 1010 1015 1020
 Gln Val Lys Val Tyr Val Ala Ser Lys Arg Lys Leu Gln Val Gly Asp
 1025 1030 1035 1040
 Lys Met Ala Gly Arg His Gly Asn Lys Gly Val Val Ser Lys Ile Val
 1045 1050 1055
 Pro Glu Ala Asp Met Pro Tyr Leu Ser Asn Gly Glu Thr Val Gln Met
 1060 1065 1070
 Ile Leu Asn Pro Leu Gly Val Pro Ser Arg Met Asn Leu Gly Gln Val
 1075 1080 1085
 Leu Glu Thr His Leu Gly Tyr Ala Ala Lys Thr Ala Gly Ile Tyr Val
 1090 1095 1100
 Lys Thr Pro Val Phe Glu Gly Phe Pro Glu Gln Arg Ile Trp Asp Met
 1105 1110 1115 1120
 Met Ile Glu Gln Gly Leu Pro Glu Asp Gly Lys Ser Phe Leu Tyr Asp
 1125 1130 1135
 Gly Lys Thr Gly Glu Arg Phe Asp Asn Lys Val Val Ile Gly Tyr Ile
 1140 1145 1150
 Tyr Met Leu Lys Leu Ser His Leu Ile Ala Asp Lys Ile His Ala Arg
 1155 1160 1165
 Ser Ile Gly Pro Tyr Ser Leu Val Thr Gln Gln Pro Leu Gly Gly Lys
 1170 1175 1180
 Ala Gln Met Gly Gly Gln Arg Phe Gly Glu Met Glu Val Trp Ala Leu
 1185 1190 1195 1200
 Glu Ala Tyr Gly Val Ala His Met Leu Gln Glu Ile Leu Thr Val Lys
 1205 1210 1215
 Ser Asp Asp Val Ser Gly Arg Thr Arg Ile Tyr Glu Ser Ile Val Lys
 1220 1225 1230
 Gly Glu Asn Leu Leu Arg Ser Gly Thr Pro Glu Ser Phe Asn Val Leu
 1235 1240 1245
 Ile Lys Glu Met Gln Gly Leu Gly Leu Asp Val Arg Pro Met Val Val
 1250 1255 1260
 Asp Ala
 1265

<210> 84
 <211> 1410
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 84
 Cys Ser Ser Tyr Gly Arg Arg Arg Leu Lys Asn Asp Val Leu Glu Lys
 1 5 10 15
 Ile Met Phe Gly Glu Asn Ser Arg Asp Ile Gly Val Leu Ser Lys Glu
 20 25 30
 Gly Leu Phe Asp Lys Leu Glu Ile Gly Ile Ala Ser Asp Ile Thr Ile
 35 40 45
 Arg Asp Lys Trp Ser Cys Gly Glu Ile Lys Lys Pro Glu Thr Ile Asn
 50 55 60
 Tyr Arg Thr Phe Lys Pro Glu Lys Gly Gly Leu Phe Cys Glu Lys Ile
 65 70 75 80
 Phe Gly Pro Thr Lys Asp Trp Glu Cys Cys Cys Gly Lys Tyr Lys Lys
 85 90 95
 Ile Lys His Lys Gly Ile Val Cys Asp Arg Cys Gly Val Glu Val Thr
 100 105 110
 Leu Ser Lys Val Arg Arg Glu Arg Met Ala His Ile Glu Leu Ala Val
 115 120 125
 Pro Ile Val His Ile Trp Phe Phe Lys Thr Thr Pro Ser Arg Ile Gly
 130 135 140
 Asn Val Leu Gly Met Thr Ala Ser Asp Leu Glu Arg Val Ile Tyr Tyr
 145 150 155 160

411

Ser Gly Ala Ile Ile Ser Val Glu Glu Gly Gln Arg Val Asp Pro Gly
 1125 1130 1135
 Met Leu Leu Ala Arg Leu Pro Arg Gly Ala Ile Lys Thr Lys Asp Ile
 1140 1145 1150
 Thr Gly Gly Leu Pro Arg Val Ala Glu Leu Val Glu Ala Arg Lys Pro
 1155 1160 1165
 Glu Asp Ala Ala Asp Ile Ala Lys Ile Asp Gly Val Val Asp Phe Lys
 1170 1175 1180
 Gly Ile Gln Lys Asn Lys Arg Ile Leu Val Val Cys Asp Glu Met Thr
 1185 1190 1195 1200
 Gly Met Glu Glu Glu His Leu Ile Pro Leu Thr Lys His Leu Ile Val
 1205 1210 1215
 Gln Arg Gly Asp Ser Val Ile Lys Gly Gln Gln Leu Thr Asp Gly Leu
 1220 1225 1230
 Val Val Pro His Glu Ile Leu Glu Ile Cys Gly Val Arg Glu Leu Gln
 1235 1240 1245
 Lys Tyr Leu Val Asn Glu Val Gln Glu Val Tyr Arg Leu Gln Gly Val
 1250 1255 1260
 Asp Ile Asn Asp Lys His Ile Glu Ile Ile Val Arg Gln Met Leu Gln
 1265 1270 1275 1280
 Lys Val Arg Ile Thr Asp Pro Gly Asp Thr Thr Leu Leu Phe Gly Glu
 1285 1290 1295
 Asp Val Asn Lys Lys Glu Phe Tyr Glu Glu Asn Arg Arg Thr Glu Glu
 1300 1305 1310
 Asp Gly Gly Lys Pro Ala Gln Ala Val Pro Val Leu Leu Gly Ile Thr
 1315 1320 1325
 Lys Ala Ser Leu Gly Thr Glu Ser Phe Ile Ser Ala Ala Ser Phe Gln
 1330 1335 1340
 Asp Thr Thr Arg Val Leu Thr Asp Ala Ala Cys Cys Ser Lys Thr Asp
 1345 1350 1355 1360
 Tyr Leu Leu Gly Phe Lys Glu Asn Val Ile Met Gly His Met Ile Pro
 1365 1370 1375
 Gly Gly Thr Gly Phe Glu Thr His Lys Arg Ile Lys Gln Tyr Leu Glu
 1380 1385 1390
 Lys Glu Gln Glu Asp Leu Val Phe Asp Phe Val Ser Glu Thr Glu Cys
 1395 1400 1405
 Val Cys
 1410

<210> 85
 <211> 339
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 85
 Arg Cys Leu Glu Ile Asn Ser Asp Ala Lys Val Pro Met Ser Asn Gln
 1 5 10 15
 Phe Asp Gln Leu Lys Lys Leu Ser Thr Ile Val Cys Asp Ser Gly Asp
 20 25 30
 Pro Glu Leu Val Lys Ala Ser Gly Ser Gln Asp Ala Thr Thr Asn Pro
 35 40 45
 Ser Leu Ile Leu Lys Val Ala Gln Glu Pro Lys Phe Gln Glu Leu Leu
 50 55 60
 Asn Glu Ala Val Val Trp Gly Ile Arg Gln Asn Gly Asp Asp Leu Gln
 65 70 75 80
 Thr Leu Ser Phe Ile Leu Asp Lys Ile Gln Val Asn Phe Ala Leu Glu
 85 90 95
 Ile Ile Lys Asn Ile Pro Gly Arg Ile Ser Leu Glu Ile Asp Ala Arg
 100 105 110
 Leu Ser Phe Asn Val Glu Ala Met Val Gln Arg Ala Val Phe Leu Ser
 115 120 125

Gln Leu Phe Glu Ala Met Gly Gly Asp Lys Lys Arg Leu Leu Val Lys
 130 135 140
 Ile Pro Gly Thr Trp Glu Gly Ile Arg Ala Val Glu Phe Leu Glu Ala
 145 150 155 160
 Lys Gly Ile Ala Cys Asn Val Thr Leu Ile Phe Asn Leu Val Gln Ala
 165 170 175
 Ile Ala Ala Ala Lys Ala Lys Ala Thr Leu Ile Ser Pro Phe Val Gly
 180 185 190
 Arg Ile Tyr Asp Trp Trp Ile Ala Ala Tyr Gly Asp Glu Gly Tyr Ser
 195 200 205
 Ile Asp Ala Asp Pro Gly Val Ala Ser Val Ser Asn Ile Tyr Ala Tyr
 210 215 220
 Tyr Lys Lys Phe Gly Ile Pro Thr Gln Ile Met Ala Ala Ser Phe Arg
 225 230 235 240
 Thr Lys Glu Gln Val Leu Ala Leu Ala Gly Cys Asp Leu Leu Thr Ile
 245 250 255
 Ser Pro Lys Leu Leu Asp Glu Leu Lys Lys Ser Gln His Pro Val Lys
 260 265 270
 Lys Glu Leu Asp Pro Ala Glu Ala Lys Lys Leu Asp Val Gln Pro Ile
 275 280 285
 Glu Leu Thr Glu Ser Phe Phe Arg Phe Leu Met Asn Glu Asp Ala Met
 290 295 300
 Ala Thr Glu Lys Leu Ala Glu Gly Ile Arg Ile Phe Ala Gly Asp Thr
 305 310 315 320
 Gln Ile Leu Glu Thr Ala Ile Thr Glu Phe Ile Lys Gln Ile Ala Ala
 325 330 335
 Glu Gly Ala

<210> 86
 <211> 132
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 86
 Ser Glu Met Lys Asn Lys Met Asp Tyr Lys Ser Gln Leu Val Phe Ser
 1 5 10 15
 Cys Pro Cys Cys Cys Lys Gly Asn Val Cys Phe Ser Val Phe Asn Leu
 20 25 30
 Asp Val Ile Leu Thr Cys Asn Val Cys Ser Ser Thr Tyr Thr Phe Asp
 35 40 45
 Ser Val Ile Arg Asn Glu Ile Arg Gln Phe Val Ala Leu Cys Lys Arg
 50 55 60
 Ile His Asp Ala Asn Ser Ile Leu Gly Asn Ala Thr Val Ser Val Ser
 65 70 75 80
 Val Glu Asp Asn Gln Met Asp Ile Pro Phe Gln Leu Leu Phe Ser Arg
 85 90 95
 Phe Pro Val Val Leu Asn Leu Ser Leu Asp Gly Lys Lys Ile Ala Ile
 100 105 110
 Arg Phe Leu Phe Asp Ala Leu Asn Thr Ser Ile Leu His Gln Glu Ser
 115 120 125
 Asp Leu Ile Ser
 130

<210> 87
 <211> 249
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 87

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Ser | Met | Lys | Phe | Phe | Ile | Leu | Phe | Ile | Leu | Ile | Val | Ala | Gln | Phe |
| 1 | | | | 5 | | | | 10 | | | | | | 15 | |
| Pro | Ala | Phe | Ser | Ala | Gln | Pro | Arg | Thr | Gln | Val | Ser | Ala | Ser | His | Ser |
| | | | 20 | | | | | 25 | | | | | | 30 | |
| Lys | Gln | Ala | Lys | Ala | Arg | Arg | Thr | Ser | Arg | Ile | Arg | Ser | Ser | Ala | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Thr | Asn | Ala | Ser | Val | Ser | Arg | Tyr | Lys | Thr | Arg | Ala | Ala | Ala | Arg | Lys |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Lys | Ile | Gly | Lys | Phe | Glu | Lys | Lys | Pro | Ser | Leu | Ser | Pro | Val | Gln | Trp |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Val | Arg | Tyr | Ser | Gly | Lys | Asn | Tyr | Ser | Ile | Gln | Thr | Pro | Ser | Leu | Trp |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Gln | Cys | Ile | Asp | Asp | Lys | Thr | Gln | Leu | Pro | Glu | Lys | Leu | Asp | Val | Leu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Ile | Gly | Lys | Gly | Lys | Gly | Asn | Leu | Thr | Pro | Thr | Ile | Asn | Ile | Ala |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gln | Glu | Ile | Thr | Ser | Lys | Ser | Ser | Lys | Glu | Tyr | Ile | Glu | Glu | Ile | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ala | Tyr | His | Lys | Ala | Asn | Glu | Met | Thr | Leu | Glu | Ser | Gly | Ile | Phe | Thr |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gln | Ile | Gln | Ser | Pro | Ser | Gly | Glu | Phe | Thr | Ile | Ile | Lys | Thr | Glu | Lys |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Asn | Ser | Ser | Trp | Gly | Arg | Val | Phe | Cys | Leu | Gln | Ala | Thr | Thr | Val | Ile |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Asp | His | Thr | Ala | Tyr | Ile | Phe | Thr | Ser | Thr | Ala | Thr | Leu | Asp | Asp | Tyr |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ala | Glu | Leu | Ser | Phe | Thr | Phe | Leu | Lys | Val | Val | Ser | Ser | Phe | Gln | Ile |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Arg | Gly | Gly | Lys | Glu | Ala | Thr | Ser | Gly | Asp | Ala | Ile | Leu | Glu | Lys | Ala |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Glu | Ala | Leu | Gln | Asn | Glu | Asn | Lys | | | | | | | |
| | | | | 245 | | | | | | | | | | | |

<210> 88
 <211> 210
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 88

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ile | Met | Ala | Asn | Leu | Asn | Ala | Asp | Gly | Lys | Leu | Lys | Gln | Ile | Cys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Asp | Ala | Leu | Arg | Leu | Asp | Thr | Leu | Lys | Pro | Ala | Glu | Asp | Glu | Ala | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Leu | Leu | His | Asn | Ala | Lys | Glu | Gln | Ala | Lys | Arg | Ile | Ile | Gln | Glu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ala | Gln | Glu | Glu | Ala | Arg | Lys | Ile | Leu | Glu | Thr | Ala | Glu | Glu | Arg | Ala |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| His | Gln | Lys | Ile | Lys | Gln | Gly | Glu | Val | Ala | Leu | Ser | Gln | Ala | Gly | Lys |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Arg | Ala | Leu | Glu | Ala | Leu | Lys | Gln | Ala | Val | Glu | Asn | Lys | Ile | Phe | Arg |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Glu | Ser | Leu | Val | Glu | Trp | Leu | Glu | His | Val | Thr | Thr | Asp | Pro | Glu | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Thr | Lys | Leu | Ile | Gln | Ala | Leu | Val | Gln | Ala | Leu | Glu | Ala | Gln | Gly |
| | | 115 | | | | 120 | | | | | | 125 | | | |
| Val | Ser | Gly | Asn | Leu | Thr | Ala | Tyr | Ile | Gly | Lys | His | Val | Ser | Pro | Arg |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ala | Val | Asn | Glu | Leu | Leu | Gly | Lys | Ala | Val | Thr | Thr | Lys | Leu | Arg | Lys |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |

Lys Ser Val Val Val Gly Ser Phe Val Gly Gly Val Gln Leu Lys Val
 165 170 175
 Glu Glu Lys Asn Trp Val Leu Asp Leu Ser Ser Ser Ala Leu Leu Glu
 180 185 190
 Ile Phe Thr Arg Tyr Leu Gln Lys Asp Phe Arg Glu Met Ile Phe Gln
 195 200 205
 Gly Ser
 210

<210> 89
 <211> 279
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 89
 Ser His Glu Lys Ile Phe Ser Ile Phe Lys Val Val Val Met Thr Gln
 1 5 10 15
 Tyr Tyr Phe Leu Ser Ser Phe Leu Pro Thr Gln Leu Pro Glu Ser Val
 20 25 30
 Pro Leu Phe Ser Ile Ser Asp Leu Asp Asp Leu Leu Tyr Leu Asn Leu
 35 40 45
 Ser Glu Asn Asp Leu Cys Asn Tyr Gly Leu Leu Lys Arg Phe Phe Asp
 50 55 60
 Phe Glu Asn Phe Ala Phe Phe Trp Ala Gly Lys Pro Ile Pro Phe Ser
 65 70 75 80
 Phe Gly Glu Val Thr Gln Glu Asn Val Glu Arg Met Leu Ser Ser Gln
 85 90 95
 Gln Trp Ser Asp Asp Asn Asp Phe Glu Asp Phe Phe Lys Asp Phe Leu
 100 105 110
 Met Asn His Lys Ser Ser Gln Asp Arg Leu Asn His Phe Ser Asp Leu
 115 120 125
 Phe Arg Glu Phe Leu Ser Tyr His Gln Thr Asn Ser Ser Lys Phe Leu
 130 135 140
 Gln Asp Tyr Phe Arg Phe Gln Gln Gln Leu Arg Val Val Leu Ala Gly
 145 150 155 160
 Phe Arg Ala Arg Val Leu Asn Met Asp Val Ser Tyr Val Leu Arg Asp
 165 170 175
 Glu Asp Ser Ser Asp Pro Val Val Leu Glu Val Leu Met Gln Lys Asp
 180 185 190
 Ser Pro Asn Tyr Glu Leu Pro Glu Glu Phe Ser Asp Leu Gln Gly Val
 195 200 205
 Leu Asp Asp Tyr Gly Leu Leu Pro His Thr Leu Asn Arg Ala Leu Ala
 210 215 220
 Leu Tyr Gln Phe His Lys Leu Glu Gly Phe Cys Ser Asp Ser Tyr Phe
 225 230 235 240
 Asp Gly Asn Val Ile Leu Ala Arg Cys Ala Thr Tyr Met Phe Ala Ile
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 Ile Glu Lys Ala Ile Lys Trp
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<210> 90
 <211> 598
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 90
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| | | | | | | | | | | | | | | | | |
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| Gln | Gly | His | Val | Ile | Glu | Ala | Tyr | Gly | Asn | Leu | Leu | Arg | Val | Arg | Phe | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Asp | Gly | Tyr | Val | Arg | Gln | Gly | Glu | Val | Ala | Tyr | Val | Asn | Val | Asp | Asn | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Thr | Trp | Leu | Lys | Ala | Glu | Val | Ile | Glu | Val | Ala | Asp | Gln | Glu | Val | Lys | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Val | Gln | Val | Phe | Glu | Asp | Thr | Gln | Gly | Ala | Cys | Arg | Gly | Ala | Leu | Val | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Thr | Phe | Ser | Gly | His | Leu | Leu | Glu | Ala | Glu | Leu | Gly | Pro | Gly | Leu | Leu | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Gln | Gly | Ile | Phe | Asp | Gly | Leu | Gln | Asn | Arg | Leu | Glu | Val | Leu | Ala | Glu | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Asp | Ser | Ser | Phe | Leu | Gln | Arg | Gly | Lys | His | Val | Asn | Ala | Ile | Ser | Asp | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| His | Asn | Leu | Trp | Asn | Tyr | Thr | Pro | Val | Ala | Ser | Val | Gly | Asp | Thr | Leu | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Arg | Arg | Gly | Asp | Leu | Leu | Gly | Thr | Val | Pro | Glu | Gly | Arg | Phe | Thr | His | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Lys | Ile | Met | Val | Pro | Phe | Ser | Cys | Phe | Gln | Glu | Val | Thr | Leu | Thr | Trp | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Val | Ile | Ser | Glu | Gly | Thr | Tyr | Asn | Ala | His | Thr | Val | Val | Ala | Lys | Ala | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Arg | Asp | Ala | Gln | Gly | Lys | Glu | Cys | Ala | Phe | Thr | Met | Val | Gln | Arg | Trp | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Pro | Ile | Lys | Gln | Ala | Phe | Ile | Glu | Gly | Glu | Lys | Ile | Pro | Ala | His | Lys | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Ile | Met | Asp | Val | Gly | Leu | Arg | Ile | Leu | Asp | Thr | Gln | Ile | Pro | Val | Leu | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Lys | Gly | Gly | Thr | Phe | Cys | Thr | Pro | Gly | Pro | Phe | Gly | Ala | Gly | Lys | Thr | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Val | Leu | Gln | His | His | Leu | Ser | Lys | Tyr | Ala | Ala | Val | Asp | Ile | Val | Ile | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Leu | Cys | Ala | Cys | Gly | Glu | Arg | Ala | Gly | Glu | Val | Val | Glu | Val | Leu | Gln | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Glu | Phe | Pro | His | Leu | Ile | Asp | Pro | His | Thr | Gly | Lys | Ser | Leu | Met | His | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Arg | Thr | Cys | Ile | Ile | Cys | Asn | Thr | Ser | Ser | Met | Pro | Val | Ala | Ala | Arg | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Glu | Ser | Ser | Ile | Tyr | Leu | Gly | Val | Thr | Ile | Ala | Glu | Tyr | Tyr | Arg | Gln | |
| | | | | 325 | | | | | 330 | | | | | 335 | | |
| Met | Gly | Leu | Asp | Ile | Leu | Leu | Leu | Ala | Asp | Ser | Thr | Ser | Arg | Trp | Ala | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| Gln | Ala | Leu | Arg | Glu | Ile | Ser | Gly | Arg | Leu | Glu | Glu | Ile | Pro | Gly | Glu | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| Glu | Ala | Phe | Pro | Ala | Tyr | Leu | Ser | Ser | Arg | Ile | Ala | Ala | Phe | Tyr | Glu | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Arg | Gly | Gly | Ala | Ile | Thr | Lys | Asp | Gly | Ser | Glu | Gly | Ser | Leu | Thr | | |
| 385 | | | | | 390 | | | | 395 | | | | | | 400 | |
| Ile | Cys | Gly | Ala | Val | Ser | Pro | Ala | Gly | Gly | Asn | Phe | Glu | Glu | Pro | Val | |
| | | | | 405 | | | | | 410 | | | | | 415 | | |
| Thr | Gln | Ser | Thr | Leu | Ala | Val | Val | Gly | Ala | Phe | Cys | Gly | Leu | Ser | Lys | |
| | | | 420 | | | | | 425 | | | | | 430 | | | |
| Ala | Arg | Ala | Asp | Ala | Arg | Arg | Tyr | Pro | Ser | Ile | Asp | Pro | Leu | Ile | Ser | |
| | | 435 | | | | | 440 | | | | | 445 | | | | |
| Trp | Ser | Lys | Tyr | Leu | Asn | Gln | Val | Gly | Gln | Ile | Leu | Glu | Glu | Lys | Val | |
| | 450 | | | | | 455 | | | | | 460 | | | | | |
| Ser | Gly | Trp | Gly | Gly | Ala | Val | Lys | Lys | Ala | Ala | Gln | Phe | Leu | Glu | Lys | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | |
| Gly | Ser | Glu | Ile | Gly | Lys | Arg | Met | Glu | Val | Val | Gly | Glu | Glu | Gly | Val | |
| | | | | 485 | | | | | 490 | | | | | 495 | | |

Ser Met Glu Asp Met Glu Ile Tyr Leu Lys Ala Glu Leu Tyr Asp Phe
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 Cys Tyr Leu Gln Gln Asn Ala Phe Asp Pro Val Asp Cys Tyr Cys Pro
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 Phe Glu Arg Gln Ile Glu Leu Phe Ser Leu Ile Ser Arg Ile Phe Asp
 530 535 540
 Ala Lys Phe Val Phe Asp Ser Pro Asp Asp Ala Arg Ser Phe Phe Leu
 545 550 555 560
 Glu Leu Gln Ser Lys Ile Lys Thr Leu Asn Gly Leu Lys Phe Leu Ser
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 Glu Glu Tyr His Glu Ser Lys Glu Val Ile Val Arg Leu Leu Glu Lys
 580 585 590
 Thr Met Val Gln Met Ala
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<210> 91
 <211> 452
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 91
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 35 40 45
 Asp Gly Arg Ser Ser Tyr Ala Ser Val Leu Arg Phe Asp Leu Lys Lys
 50 55 60
 Val Thr Leu Gln Val Phe Gly Gly Thr Ser Gly Leu Ser Thr Gly Asp
 65 70 75 80
 His Val Thr Phe Leu Gly Arg Pro Met Glu Val Thr Phe Gly Ser Ser
 85 90 95
 Leu Leu Gly Arg Arg Leu Asn Gly Ile Gly Lys Pro Ile Asp Asn Glu
 100 105 110
 Gly Glu Cys Phe Gly Glu Pro Ile Glu Ile Ala Thr Pro Thr Phe Asn
 115 120 125
 Pro Val Cys Arg Ile Val Pro Arg Ser Met Val Arg Thr Asn Ile Pro
 130 135 140
 Met Ile Asp Val Phe Asn Cys Leu Val Lys Ser Gln Lys Ile Pro Ile
 145 150 155 160
 Phe Ser Ser Ser Gly Glu His His Asn Ala Leu Leu Met Arg Ile Ala
 165 170 175
 Ala Gln Thr Asp Ala Asp Ile Val Val Ile Gly Gly Met Gly Leu Thr
 180 185 190
 Phe Val Asp Tyr Ser Phe Phe Val Glu Glu Ser Lys Lys Leu Gly Phe
 195 200 205
 Ala Asp Lys Cys Val Met Phe Ile His Lys Ala Val Asp Ala Pro Val
 210 215 220
 Glu Cys Val Leu Val Pro Asp Met Ala Leu Ala Cys Ala Glu Lys Phe
 225 230 235 240
 Ala Val Glu Glu Lys Lys Asn Val Leu Val Leu Leu Thr Asp Met Thr
 245 250 255
 Ala Phe Ala Asp Ala Leu Lys Glu Ile Ser Ile Thr Met Asp Gln Ile
 260 265 270
 Pro Ala Asn Arg Gly Tyr Pro Gly Ser Leu Tyr Ser Asp Leu Ala Leu
 275 280 285
 Arg Tyr Glu Lys Ala Val Glu Ile Ala Asp Gly Gly Ser Ile Thr Leu
 290 295 300
 Ile Thr Val Thr Thr Met Pro Ser Asp Asp Ile Thr His Pro Val Pro
 305 310 315 320

420

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Tyr | Ser | Gly | Ile | Gly | Trp | Ile | Leu | Phe | Met | Val | Ser | Ala | Tyr | Leu |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Tyr | Val | Pro | Ile | Tyr | Leu | Gly | Thr | Val | Ser | Leu | Ile | His | Tyr | Leu | Phe |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| His | Val | Pro | Tyr | Glu | Leu | Gly | Gly | Gln | Ile | Gly | Tyr | Tyr | Gly | Met | Phe |
| | | 515 | | | | 520 | | | | | | 525 | | | |
| Gly | Gly | Ile | Gly | Leu | Ala | Val | Val | Leu | Ala | Met | Ile | Gln | Arg | Ser | Trp |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Arg | Gly | Val | Glu | Glu | Ile | Ile | Ser | Val | Ile | Gln | Val | Phe | Ser | Asp | Val |
| 545 | | | | 550 | | | | | 555 | | | | | 560 | |
| Leu | Ser | Tyr | Leu | Arg | Ile | Tyr | Ala | Leu | Gly | Leu | Ala | Gly | Ala | Met | Met |
| | | | 565 | | | | | 570 | | | | | | 575 | |
| Gly | Ala | Thr | Phe | Asn | Gln | Met | Gly | Ala | Arg | Leu | Pro | Met | Leu | Leu | Gly |
| | | | 580 | | | | 585 | | | | | | 590 | | |
| Ser | Ile | Val | Ile | Leu | Leu | Gly | His | Ser | Val | Asn | Ile | Ile | Leu | Ser | Ile |
| | 595 | | | | | 600 | | | | | 605 | | | | |
| Met | Gly | Gly | Val | Ile | His | Gly | Leu | Arg | Leu | Asn | Phe | Ile | Glu | Trp | Tyr |
| 610 | | | | | 615 | | | | | 620 | | | | | |
| His | Tyr | Ser | Phe | Asp | Gly | Gly | Arg | Pro | Leu | Arg | Pro | Leu | Arg | Lys | |
| 625 | | | | 630 | | | | | 635 | | | | | 640 | |
| Ile | Val | Cys | Ser | Glu | Asp | Ala | Glu | Ala | Ser | Gly | Ile | His | Leu | Asp | Asn |
| | | | 645 | | | | | 650 | | | | | 655 | | |
| Asn | Ser | Ile | Val | | | | | | | | | | | | |
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<210> 94
 <211> 151
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 94 | | | | | | | | | | | | | | | |
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| 1 | | | 5 | | | | | | 10 | | | | | 15 | |
| Val | Gly | Pro | Ala | Leu | Val | Leu | Gly | Leu | Ala | Met | Ile | Gly | Ser | Ala | Ile |
| | | 20 | | | | | 25 | | | | | 30 | | | |
| Gly | Cys | Gly | Met | Ala | Gly | Val | Ala | Ser | His | Ala | Val | Met | Ser | Arg | Ile |
| | 35 | | | | | 40 | | | | | 45 | | | | |
| Asp | Glu | Gly | His | Gly | Lys | Leu | Ile | Gly | Met | Ser | Ala | Met | Pro | Ser | Ser |
| 50 | | | | | 55 | | | | | 60 | | | | | |
| Gln | Ser | Ile | Tyr | Gly | Phe | Ile | Leu | Met | Leu | Leu | Met | Gln | Ala | Ala | Ile |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Lys | Asn | Gly | Thr | Leu | Ser | Pro | Val | Gly | Gly | Ile | Ala | Ile | Gly | Leu | Ser |
| | | | 85 | | | | 90 | | | | | | 95 | | |
| Val | Gly | Ala | Ala | Leu | Leu | Val | Ser | Ser | Val | Met | Gln | Gly | Lys | Cys | Cys |
| | | 100 | | | | | 105 | | | | | | 110 | | |
| Val | Ser | Gly | Ile | Gln | Ala | Tyr | Ala | Arg | Ser | Ser | Ser | Ile | Tyr | Gly | Lys |
| | | 115 | | | | 120 | | | | | 125 | | | | |
| Cys | Tyr | Ala | Ala | Ile | Gly | Ile | Val | Glu | Ser | Phe | Ser | Leu | Phe | Ala | Val |
| | 130 | | | | 135 | | | | | | 140 | | | | |
| Val | Phe | Ala | Leu | Leu | Leu | Leu | | | | | | | | | |
| 145 | | | | | 150 | | | | | | | | | | |

<210> 95
 <211> 192
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 95 | | | | | | | | | | | | | | | |
| Cys | Lys | Ala | Ser | Val | Val | Ser | Ala | Glu | Phe | Lys | Leu | Met | Leu | Asp | Leu |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Gln | Tyr | Met | Gly | Ser | Val | Met | Gln | Arg | Leu | Gly | Leu | Ser | Asn | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Phe | His | Cys | Leu | Leu | Leu | Phe | Leu | Arg | Tyr | Tyr | Tyr | Ser | Lys | Leu | Val |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Phe | Gly | Leu | Thr | Val | Leu | Leu | Ala | Ala | Ile | Ser | Val | Ile | Cys | Leu | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gly | Cys | Ser | Glu | Pro | Ser | Leu | Ser | Ser | Phe | Thr | Glu | Tyr | Val | Gly | Pro |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Glu | Tyr | Ser | Ala | Ala | Ala | Gln | Leu | Ser | Ile | Glu | Gln | Ser | Cys | His | Asp |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Glu | Val | Tyr | Gly | Gln | Gln | Val | Val | Val | Thr | Trp | Ser | Leu | Pro | Ser | Arg |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Met | Arg | Lys | Cys | Leu | Pro | Val | Thr | Leu | Tyr | Leu | Trp | Val | Tyr | Tyr | Gly |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Asn | Gly | Lys | Val | Glu | Lys | Leu | Thr | Tyr | Glu | Val | Asn | Gln | Ser | Ala | Gly |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Tyr | Arg | Val | Tyr | Cys | Leu | Lys | Gly | Leu | Glu | Tyr | Lys | Glu | Leu | Gln | Gly |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ile | Ile | Ser | Tyr | Arg | Val | Ala | Leu | Cys | Ser | Gly | Asn | Gln | Glu | Ile | Val |
| | | | | 165 | | | | 170 | | | | | | 175 | |
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<210> 96

<211> 956

<212> PRT

<213> Chlamydia pneumoniae

<400> 96

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Tyr | Arg | Val | Phe | Leu | Ser | Arg | Asp | His | Lys | Phe | Gly | Leu | Arg | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Met | Thr | Thr | Glu | Asp | Phe | Pro | Lys | Ala | Tyr | Asn | Phe | Gln | Asp | Thr | Glu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Pro | Glu | Leu | Tyr | Val | Phe | Trp | Glu | Lys | Asn | Gly | Met | Phe | Lys | Ala | Glu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ala | Ser | Ser | Asp | Lys | Pro | Pro | Tyr | Ser | Val | Ile | Met | Pro | Pro | Pro | Asn |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Val | Thr | Gly | Val | Leu | His | Met | Gly | His | Ala | Leu | Val | Asn | Thr | Leu | Gln |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Asp | Val | Leu | Val | Arg | Tyr | Lys | Arg | Met | Ser | Gly | Phe | Glu | Val | Cys | Trp |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ile | Pro | Gly | Thr | Asp | His | Ala | Gly | Ile | Ala | Thr | Gln | Ala | Val | Val | Glu |
| | | | 100 | | | | 105 | | | | | | 110 | | |
| Arg | His | Leu | Gln | Ala | Ser | Glu | Gly | Lys | Arg | Arg | Thr | Asp | Tyr | Ser | Arg |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Glu | Asp | Phe | Leu | Lys | His | Ile | Trp | Ala | Trp | Lys | Glu | Lys | Ser | Glu | Lys |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Val | Val | Leu | Ser | Gln | Leu | Arg | Gln | Leu | Gly | Cys | Ser | Cys | Asp | Trp | Asp |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Arg | Lys | Arg | Phe | Thr | Met | Glu | Pro | Leu | Ala | Asn | Arg | Ala | Val | Lys | Lys |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Ala | Phe | Lys | Thr | Leu | Phe | Glu | Asn | Gly | Tyr | Ile | Tyr | Arg | Gly | Tyr | Tyr |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Leu | Val | Asn | Trp | Asp | Pro | Val | Leu | Gln | Thr | Ala | Leu | Ala | Asp | Asp | Glu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Val | Glu | Tyr | Glu | Glu | Lys | Asp | Gly | Trp | Leu | Tyr | Tyr | Ile | Arg | Tyr | Arg |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Met | Val | Gly | Ser | Gln | Glu | Ser | Ile | Val | Val | Ala | Thr | Thr | Arg | Pro | Glu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Thr | Ser | Leu | Gly | Asp | Thr | Gly | Ile | Ala | Val | Ser | Pro | Asn | Asp | Glu | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 | |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Tyr | Ala | Ser | Trp | Ile | Gly | Ala | Ser | Val | Glu | Val | Pro | Phe | Val | Asn | Arg | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | |
| Gln | Ile | Pro | Ile | Ile | Gly | Asp | Ala | Ser | Val | Asp | Pro | Thr | Phe | Gly | Thr | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | |
| Gly | Ala | Val | Lys | Val | Thr | Pro | Ala | His | Asp | Lys | Asp | Asp | Tyr | Leu | Met | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| Gly | Thr | Asn | His | His | Leu | Pro | Met | Ile | Asn | Ile | Leu | Thr | Pro | Ser | Gly | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | |
| Gly | Ile | Asn | Glu | Asn | Gly | Gly | Pro | Phe | Ala | Gly | Met | Ala | Lys | Glu | Lys | | |
| | | | | 325 | | | | | 330 | | | | | 335 | | | |
| Ala | Arg | Glu | Glu | Ile | Leu | Ile | Ala | Leu | Glu | Glu | Gln | Gly | Leu | Phe | Val | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | |
| Arg | Lys | Glu | Pro | Tyr | Lys | Leu | Arg | Val | Gly | Val | Ser | Tyr | Arg | Ser | Gly | | |
| | | 355 | | | | 360 | | | | | | 365 | | | | | |
| Ala | Val | Ile | Glu | Pro | Tyr | Leu | Ser | Lys | Gln | Trp | Phe | Val | Ser | Val | Ser | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | |
| Glu | Phe | Arg | Gly | Ala | Leu | Arg | Glu | Phe | Val | Glu | Ser | Gln | Asp | Ile | Lys | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | |
| Ile | Phe | Pro | Lys | Asp | Phe | Val | Lys | Asn | Tyr | Leu | Ser | Trp | Val | Asn | His | | |
| | | | | 405 | | | | | 410 | | | | | 415 | | | |
| Leu | Arg | Asp | Trp | Cys | Ile | Ser | Arg | Gln | Leu | Trp | Trp | Gly | His | Arg | Ile | | |
| | | | 420 | | | | | 425 | | | | | 430 | | | | |
| Pro | Val | Trp | Tyr | His | Lys | Asn | Asp | Glu | Arg | Val | Leu | Cys | Tyr | Asp | | | |
| | | 435 | | | | 440 | | | | | 445 | | | | | | |
| Gly | Glu | Gly | Ile | Pro | Glu | Glu | Val | Ala | Gln | Asp | Pro | Asp | Ser | Trp | Tyr | | |
| | 450 | | | | | 455 | | | | 460 | | | | | | | |
| Gln | Asp | Pro | Asp | Val | Leu | Asp | Thr | Trp | Phe | Ser | Ser | Gly | Leu | Trp | Pro | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | |
| Leu | Thr | Cys | Leu | Gly | Trp | Pro | Asp | Glu | Asn | Ser | Pro | Asp | Leu | Lys | Lys | | |
| | | | | 485 | | | | | 490 | | | | | 495 | | | |
| Phe | Tyr | Pro | Thr | Ala | Leu | Leu | Val | Thr | Gly | His | Asp | Ile | Leu | Phe | Phe | | |
| | | | 500 | | | | | 505 | | | | | 510 | | | | |
| Trp | Val | Thr | Arg | Met | Val | Leu | Leu | Cys | Ser | Ser | Met | Ser | Gly | Glu | Lys | | |
| | | 515 | | | | 520 | | | | | | 525 | | | | | |
| Pro | Phe | Ser | Glu | Val | Phe | Leu | His | Gly | Leu | Ile | Phe | Gly | Lys | Ser | Tyr | | |
| | 530 | | | | | 535 | | | | | 540 | | | | | | |
| Lys | Arg | Tyr | Asn | Asp | Phe | Gly | Glu | Trp | Ser | Tyr | Ile | Ser | Gly | Lys | Glu | | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | | |
| Lys | Leu | Ala | Tyr | Asp | Met | Gly | Glu | Ala | Leu | Pro | Asp | Gly | Val | Val | Ala | | |
| | | | | 565 | | | | | 570 | | | | | 575 | | | |
| Lys | Trp | Glu | Lys | Leu | Ser | Lys | Ser | Lys | Gly | Asn | Val | Ile | Asp | Pro | Leu | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | |
| Glu | Met | Ile | Ala | Thr | Tyr | Gly | Thr | Asp | Ala | Val | Arg | Leu | Thr | Leu | Cys | | |
| | | 595 | | | | 600 | | | | | | 605 | | | | | |
| Ser | Cys | Ala | Asn | Arg | Gly | Glu | Gln | Ile | Asp | Leu | Asp | Tyr | Arg | Leu | Phe | | |
| | 610 | | | | 615 | | | | | | 620 | | | | | | |
| Glu | Glu | Tyr | Lys | His | Phe | Ala | Asn | Lys | Val | Trp | Asn | Gly | Ala | Arg | Phe | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | |
| Ile | Phe | Gly | His | Ile | Ser | Asp | Leu | Gln | Gly | Lys | Asp | Leu | Leu | Ala | Gly | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | |
| Ile | Asp | Glu | Asp | Ser | Leu | Gly | Leu | Glu | Asp | Phe | Tyr | Ile | Leu | Asp | Gly | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | |
| Phe | Asn | Gln | Leu | Ile | His | Gln | Leu | Glu | Glu | Ala | Tyr | Ala | Thr | Tyr | Ala | | |
| | | 675 | | | | 680 | | | | | | 685 | | | | | |
| Phe | Asp | Lys | Val | Ala | Thr | Leu | Ala | Tyr | Glu | Phe | Phe | Arg | Asn | Asp | Leu | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | |
| Cys | Ser | Thr | Tyr | Ile | Glu | Ile | Ile | Lys | Pro | Thr | Leu | Phe | Gly | Lys | Gln | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | |
| Gly | Asn | Glu | Ala | Ser | Gln | Ser | Thr | Lys | Arg | Thr | Leu | Leu | Ala | Val | Leu | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | |

Leu Ile Asn Val Leu Gly Val Leu His Pro Val Ala Pro Phe Ile Thr
 740 745 750
 Glu Ser Leu Phe Leu Arg Ile Gln Asp Thr Leu Gly Ala Leu Pro Glu
 755 760 765
 Gly Asp Gly Asp Ala Phe Thr Gly His Ala Leu Arg Met Leu Arg Ser
 770 775 780
 Arg Ala Cys Met Glu Ala Pro Tyr Pro Lys Ala Phe Asp Val Lys Ile
 785 790 795 800
 Pro Gln Asp Leu Arg Glu Ser Phe Thr Leu Ala Gln Arg Leu Val Tyr
 805 810 815
 Thr Ile Arg Asn Ile Arg Gly Glu Met Gln Leu Asp Pro Arg Leu His
 820 825 830
 Leu Lys Ala Phe Val Val Cys Ser Asp Thr Thr Glu Ile Gln Ser Cys
 835 840 845
 Ile Pro Ile Leu Gln Ala Leu Gly Gly Leu Glu Ser Ile Gln Leu Leu
 850 855 860
 Asp Lys Glu Pro Glu Lys Gly Leu Tyr Ser Phe Gly Val Val Asp Thr
 865 870 875 880
 Ile Arg Leu Gly Ile Phe Val Pro Glu Glu His Leu Leu Lys Glu Lys
 885 890 895
 Gly Arg Leu Glu Lys Glu Arg Val Arg Leu Glu Arg Ala Val Glu Asn
 900 905 910
 Leu Glu Arg Leu Leu Gly Asp Glu Ser Phe Cys Gln Lys Ala Asn Pro
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 945 950 955

<210> 97
 <211> 945
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 97
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 Arg Glu Asp Leu Ala Glu Asn Pro Leu Leu Lys Arg Arg Phe Leu Arg
 50 55 60
 Glu Ala Arg Ile Ala Ala Asp Leu Ile His Pro Gly Val Val Pro Val
 65 70 75 80
 Tyr Thr Ile Tyr Ser Glu Lys Asp Pro Val Tyr Tyr Thr Met Pro Tyr
 85 90 95
 Ile Glu Gly Tyr Thr Leu Lys Thr Leu Leu Lys Ser Val Trp Gln Lys
 100 105 110
 Glu Ser Leu Ser Lys Glu Leu Ala Glu Lys Thr Ser Val Gly Ala Phe
 115 120 125
 Leu Ser Ile Phe His Lys Ile Cys Cys Thr Ile Glu Tyr Val His Ser
 130 135 140
 Arg Gly Ile Leu His Arg Asp Leu Lys Pro Asp Asn Ile Leu Leu Gly
 145 150 155 160
 Leu Phe Ser Glu Ala Val Ile Leu Asp Trp Gly Ala Ala Val Ala Cys
 165 170 175
 Gly Glu Glu Glu Asp Leu Leu Asp Ile Asp Val Ser Lys Glu Glu Val
 180 185 190
 Leu Ser Ser Arg Met Thr Ile Pro Gly Arg Ile Val Gly Thr Pro Asp
 195 200 205

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Met | Ala | Pro | Glu | Arg | Leu | Leu | Gly | His | Pro | Ala | Ser | Lys | Ser | Thr | 210 | 215 | 220 |
| Asp | Ile | Tyr | Ala | Leu | Gly | Val | Val | Leu | Tyr | Gln | Met | Leu | Thr | Leu | Ser | 225 | 230 | 235 |
| Phe | Pro | Tyr | Arg | Arg | Lys | Lys | Gly | Lys | Lys | Ile | Val | Leu | Asp | Gly | Gln | 245 | 250 | 255 |
| Arg | Ile | Pro | Ser | Pro | Gln | Glu | Val | Ala | Pro | Tyr | Arg | Glu | Ile | Pro | Pro | 260 | 265 | 270 |
| Phe | Leu | Ser | Ala | Val | Val | Met | Arg | Met | Leu | Ala | Val | Asp | Pro | Gln | Glu | 275 | 280 | 285 |
| Arg | Tyr | Ser | Ser | Val | Thr | Glu | Leu | Lys | Glu | Asp | Ile | Glu | Ser | His | Leu | 290 | 295 | 300 |
| Lys | Gly | Ser | Pro | Lys | Trp | Thr | Leu | Thr | Thr | Ala | Leu | Pro | Pro | Lys | Lys | 305 | 310 | 315 |
| Ser | Ser | Ser | Trp | Lys | Leu | Asn | Glu | Pro | Ile | Leu | Leu | Ser | Lys | Tyr | Phe | 325 | 330 | 335 |
| Pro | Met | Leu | Glu | Val | Ser | Pro | Ala | Ser | Trp | Tyr | Ser | Leu | Ala | Ile | Ser | 340 | 345 | 350 |
| Asn | Ile | Glu | Ser | Phe | Ser | Glu | Met | Arg | Leu | Glu | Tyr | Thr | Leu | Ser | Lys | 355 | 360 | 365 |
| Lys | Gly | Leu | Asn | Glu | Gly | Phe | Gly | Ile | Leu | Leu | Pro | Thr | Ser | Glu | Asn | 370 | 375 | 380 |
| Ala | Leu | Gly | Gly | Asp | Phe | Tyr | Gln | Gly | Tyr | Gly | Phe | Trp | Leu | His | Ile | 385 | 390 | 395 |
| Lys | Glu | Arg | Thr | Leu | Ser | Val | Ser | Leu | Val | Lys | Asn | Ser | Leu | Glu | Ile | 405 | 410 | 415 |
| Gln | Arg | Cys | Ser | Gln | Asp | Leu | Glu | Ser | Asp | Lys | Glu | Thr | Phe | Leu | Ile | 420 | 425 | 430 |
| Ala | Leu | Glu | Gln | His | Asn | His | Ser | Leu | Ser | Leu | Phe | Val | Asp | Gly | Thr | 435 | 440 | 445 |
| Thr | Trp | Leu | Ile | His | Met | Asn | Tyr | Leu | Pro | Ser | Arg | Ser | Gly | Arg | Val | 450 | 455 | 460 |
| Ala | Ile | Ile | Val | Arg | Asp | Met | Glu | Asp | Ile | Leu | Glu | Asp | Ile | Gly | Ile | 465 | 470 | 475 |
| Phe | Glu | Ser | Ser | Gly | Ser | Leu | Arg | Val | Ser | Cys | Leu | Ala | Val | Pro | Asp | 485 | 490 | 495 |
| Ala | Phe | Leu | Ala | Glu | Lys | Leu | Tyr | Asp | Arg | Ala | Leu | Val | Leu | Tyr | Arg | 500 | 505 | 510 |
| Arg | Ile | Ala | Glu | Ser | Phe | Pro | Gly | Arg | Lys | Glu | Gly | Tyr | Glu | Ala | Arg | 515 | 520 | 525 |
| Phe | Arg | Ala | Gly | Ile | Thr | Val | Leu | Glu | Lys | Ala | Ser | Thr | Asp | Asn | Asn | 530 | 535 | 540 |
| Glu | Gln | Glu | Phe | Ala | Leu | Ala | Ile | Glu | Glu | Phe | Ser | Lys | Leu | His | Asp | 545 | 550 | 555 |
| Gly | Val | Ala | Ala | Pro | Leu | Glu | Tyr | Leu | Gly | Lys | Ala | Leu | Val | Tyr | Gln | 565 | 570 | 575 |
| Arg | Leu | Gln | Glu | Tyr | Asn | Glu | Glu | Ile | Lys | Ser | Leu | Leu | Leu | Ala | Leu | 580 | 585 | 590 |
| Lys | Arg | Tyr | Ser | Gln | His | Pro | Glu | Ile | Phe | Arg | Leu | Lys | Asp | His | Val | 595 | 600 | 605 |
| Val | Tyr | Arg | Leu | His | Glu | Ser | Phe | Tyr | Lys | Arg | Asp | Arg | Leu | Ala | Leu | 610 | 615 | 620 |
| Val | Phe | Met | Ile | Leu | Val | Leu | Glu | Ile | Ala | Pro | Gln | Ala | Ile | Thr | Pro | 625 | 630 | 635 |
| Gly | Gln | Glu | Glu | Lys | Ile | Leu | Val | Trp | Leu | Lys | Asp | Lys | Ser | Arg | Ala | 645 | 650 | 655 |
| Thr | Leu | Phe | Cys | Leu | Leu | Asp | Pro | Thr | Val | Leu | Glu | Leu | Arg | Ser | Ser | 660 | 665 | 670 |
| Lys | Met | Glu | Leu | Phe | Leu | Ser | Tyr | Trp | Ser | Gly | Phe | Ile | Pro | His | Leu | 675 | 680 | 685 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ser | Leu | Phe | His | Arg | Ala | Trp | Asp | Gln | Ser | Asp | Val | Arg | Ala | Leu |
| 690 | | | | | | 695 | | | | | 700 | | | | |
| Ile | Glu | Ile | Phe | Tyr | Val | Ala | Cys | Asp | Leu | His | Lys | Trp | Gln | Phe | Leu |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Ser | Ser | Cys | Ile | Asp | Ile | Phe | Lys | Glu | Ser | Leu | Glu | Asp | Gln | Lys | Ala |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Thr | Glu | Glu | Ile | Val | Glu | Phe | Ser | Phe | Glu | Asp | Leu | Gly | Ala | Phe | Leu |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Phe | Ala | Ile | Gln | Ser | Ile | Phe | Asn | Lys | Glu | Asp | Ala | Glu | Lys | Ile | Phe |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Val | Ser | Asn | Asp | Gln | Leu | Ser | Pro | Ile | Leu | Leu | Val | Tyr | Ile | Phe | Asp |
| | | 770 | | | | 775 | | | | | 780 | | | | |
| Leu | Phe | Ala | Asn | Arg | Ala | Leu | Leu | Glu | Ser | Gln | Gly | Glu | Ala | Ile | Phe |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Gln | Ala | Leu | Asp | Leu | Ile | Arg | Ser | Lys | Val | Pro | Glu | Asn | Phe | Tyr | His |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Asp | Tyr | Leu | Arg | Asn | His | Glu | Ile | Arg | Ala | His | Leu | Trp | Cys | Arg | Asn |
| | | | | 820 | | | | 825 | | | | | | 830 | |
| Glu | Lys | Ala | Leu | Ser | Thr | Ile | Phe | Glu | Asn | Tyr | Thr | Glu | Lys | Gln | Leu |
| | | 835 | | | | | 840 | | | | | 845 | | | |
| Lys | Asp | Glu | Gln | His | Glu | Leu | Phe | Val | Leu | Tyr | Gly | Cys | Tyr | Leu | Ala |
| | | 850 | | | | 855 | | | | | 860 | | | | |
| Leu | Ile | Gln | Gly | Ala | Glu | Ala | Ala | Lys | Gln | His | Phe | Asp | Val | Cys | Arg |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 |
| Glu | Asp | Arg | Ile | Phe | Pro | Ala | Ser | Leu | Leu | Ala | Arg | Asn | Tyr | Asn | Arg |
| | | | | 885 | | | | | 890 | | | | | 895 | |
| Leu | Gly | Leu | Pro | Lys | Asp | Ala | Leu | Ser | Tyr | Gln | Glu | Arg | Arg | Leu | Leu |
| | | | 900 | | | | | 905 | | | | | 910 | | |
| Leu | Arg | Gln | Lys | Phe | Leu | Tyr | Phe | His | Cys | Leu | Gly | Asn | His | Asp | Glu |
| | | 915 | | | | 920 | | | | | | 925 | | | |
| Arg | Asp | Leu | Cys | Gln | Thr | Met | Tyr | His | Leu | Leu | Thr | Glu | Glu | Phe | Gln |
| | 930 | | | | | 935 | | | | | | 940 | | | |
| Leu | | | | | | | | | | | | | | | |
| 945 | | | | | | | | | | | | | | | |

<210> 98
 <211> 1837
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| Glu | Thr | Phe | Leu | Ser | Ile | Leu | Arg | Glu | Phe | Phe | Met | Lys | Ser | Leu | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Tyr | Val | Ser | Gly | Ile | Lys | Val | Arg | Asn | Leu | Lys | Asn | Val | Ser | Ile |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| His | Phe | Asn | Ser | Glu | Glu | Ile | Val | Leu | Leu | Thr | Gly | Val | Ser | Gly | Ser |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gly | Lys | Ser | Ser | Ile | Ala | Phe | Asp | Thr | Leu | Tyr | Ala | Ala | Gly | Arg | Lys |
| | | 50 | | | | 55 | | | | | 60 | | | | |
| Arg | Tyr | Ile | Ser | Thr | Leu | Pro | Thr | Phe | Phe | Ala | Thr | Thr | Ile | Thr | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Pro | Asn | Pro | Lys | Val | Glu | Glu | Ile | His | Gly | Leu | Ser | Pro | Thr | Ile |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Ile | Lys | Gln | Asn | His | Phe | Ser | His | Tyr | Ser | His | Ala | Thr | Val | Gly |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Thr | Thr | Glu | Leu | Phe | Ser | His | Leu | Ala | Leu | Leu | Phe | Thr | Leu | Glu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Gln | Ala | Arg | Asp | Pro | Lys | Thr | Lys | Glu | Val | Leu | Asp | Leu | Tyr | Ser |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Lys | Glu | Lys | Val | Leu | Ser | Thr | Ile | Met | Glu | Leu | Ser | Glu | Gly | Val | Gln |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Ser | Ile | Leu | Ala | Pro | Leu | Leu | Arg | Lys | Asp | Ile | Ala | Ala | Ile | His |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Glu | Tyr | Ala | Gln | Gly | Phe | Thr | Lys | Val | Arg | Cys | Asn | Gly | Thr | Ile | |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| His | Pro | Ile | Tyr | Ser | Phe | Leu | Thr | Ser | Gly | Ile | Pro | Glu | Asp | Cys | Ser |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Val | Asp | Ile | Val | Ile | Asp | Thr | Leu | Ile | Lys | Ser | Glu | Asn | Asn | Ile | Ala |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Arg | Leu | Lys | Val | Ser | Leu | Phe | Thr | Ala | Leu | Glu | Phe | Gly | Glu | Gly | His |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Cys | Ser | Val | Leu | Ser | Asp | Glu | Glu | Leu | Met | Thr | Phe | Ser | Thr | Lys | Gln |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Gln | Ile | Asp | Asp | Val | Thr | Tyr | Thr | Pro | Leu | Thr | Gln | Gln | Leu | Phe | Ser |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Pro | His | Ala | Leu | Glu | Ser | Arg | Cys | Ser | Leu | Cys | Gln | Gly | Ser | Gly | Ile |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Phe | Ile | Ser | Ile | Asp | Asn | Pro | Leu | Leu | Ile | Asp | Glu | Asn | Leu | Ser | Ile |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Lys | Glu | Asn | Cys | Cys | Ser | Phe | Ala | Gly | Asn | Cys | Ser | Ser | Tyr | Leu | Tyr |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| His | Thr | Ile | Tyr | Gln | Ala | Leu | Ala | Asp | Ala | Leu | Asn | Phe | Asn | Leu | Glu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Thr | Pro | Trp | Lys | Asp | Leu | Ser | Pro | Glu | Ile | Gln | Asn | Ile | Phe | Leu | Arg |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Gly | Lys | Asn | Asn | Leu | Val | Leu | Pro | Val | Arg | Leu | Phe | Asp | Gln | Thr | Leu |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Gly | Lys | Lys | Asn | Leu | Thr | Tyr | Lys | Val | Trp | Arg | Gly | Val | Leu | Asn | Asp |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Ile | Gly | Asp | Lys | Val | Arg | Tyr | Thr | Thr | Lys | Pro | Ser | Arg | Tyr | Leu | Ser |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Lys | Gly | Met | Ser | Ala | His | Ser | Cys | Ser | Leu | Cys | Lys | Gly | Thr | Gly | Leu |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Gly | Asp | Tyr | Ala | Ser | Val | Ala | Thr | Trp | Glu | Gly | Lys | Thr | Phe | Thr | Glu |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Phe | Gln | Gln | Met | Ser | Leu | Asn | Asn | Trp | His | Val | Phe | Phe | Ser | Lys | Val |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Lys | Ser | Pro | Ser | Leu | Ser | Ile | Gln | Glu | Ile | Leu | Gln | Gly | Leu | Lys | Gln |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Arg | Leu | Ser | Phe | Leu | Ile | Asp | Leu | Gly | Leu | Gly | Tyr | Leu | Thr | Pro | Asn |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Arg | Ala | Leu | Ala | Thr | Leu | Ser | Gly | Gly | Glu | Gln | Glu | Arg | Thr | Ala | Ile |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Ala | Lys | His | Leu | Gly | Gly | Glu | Leu | Phe | Gly | Ile | Thr | Tyr | Ile | Leu | Asp |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Glu | Pro | Ser | Ile | Gly | Leu | His | Pro | Gln | Asp | Thr | Glu | Lys | Leu | Ile | Gly |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Val | Ile | Lys | Lys | Leu | Arg | Asp | Gln | Gly | Asn | Thr | Val | Ile | Leu | Val | Glu |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| His | Glu | Glu | Arg | Met | Ile | Ser | Leu | Ala | Asp | Arg | Ile | Ile | Asp | Ile | Gly |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Pro | Gly | Ala | Gly | Ile | Phe | Gly | Gly | Glu | Val | Leu | Phe | Asn | Gly | Lys | Pro |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Glu | Asp | Phe | Leu | Met | Asn | Ser | Ser | Ser | Leu | Thr | Ala | Lys | Tyr | Leu | Arg |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Gln | Glu | Leu | Thr | Ile | Pro | Ile | Pro | Glu | Ser | Arg | Glu | Ala | Pro | Thr | Ser |
| | | | 595 | | | | 600 | | | | | 605 | | | |
| Trp | Leu | Leu | Leu | Thr | Glu | Ala | Thr | Ile | His | Asn | Leu | Lys | Asn | Leu | Ser |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Ile | Arg | Leu | Pro | Leu | Ala | Arg | Leu | Ile | Gly | Val | Thr | Gly | Val | Ser | Gly |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |

Ser Gly Lys Ser Ser Leu Ile Asn Asn Thr Leu Val Pro Ala Ile Glu
 645 650 655
 Ser Phe Leu Lys Gln Glu Asn Pro Lys Asn Leu His Phe Glu Trp Gly
 660 665 670
 Cys Ile Gly Arg Leu Ile His Ile Thr Arg Asp Leu Pro Gly Arg Ser
 675 680 685
 Gln Arg Ser Ile Pro Leu Thr Tyr Ile Lys Ala Phe Asp Asp Ile Arg
 690 695 700
 Glu Leu Phe Ala Ser Gln Pro Arg Ser Leu Arg Gln Gly Leu Thr Lys
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 Ala His Phe Ser Phe Asn Gln Pro Gln Gly Ala Cys Ile Gln Cys Gln
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 Gly Leu Gly Thr Met Thr Ile Ser Asp Asp Asp Thr Pro Ile Pro Cys
 740 745 750
 Ser Glu Cys Gln Gly Lys Arg Tyr His Ser Glu Val Leu Glu Ile Leu
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 Tyr Glu Gly Lys Asn Ile Ala Asp Ile Leu Asp Met Thr Ala Tyr Glu
 770 775 780
 Ala Glu Lys Phe Phe Ile Ser His Pro Lys Ile His Glu Lys Ile His
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 Ala Leu Cys Ser Leu Arg Leu Asp Tyr Leu Pro Leu Gly Arg Pro Leu
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 Ser Thr Leu Ser Gly Gly Glu Ile Gln Arg Leu Lys Leu Ala His Glu
 820 825 830
 Leu Leu Phe Ala Ser Pro Lys Gln Thr Leu Tyr Val Leu Asp Glu Pro
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 Thr Thr Gly Leu His Thr His Asp Ile Gln Ala Leu Ile Glu Val Leu
 850 855 860
 Leu Ser Leu Thr Tyr Leu Gly His Thr Val Leu Val Ile Glu His Asn
 865 870 875 880
 Met His Val Val Lys Val Cys Asp Tyr Val Leu Glu Leu Gly Pro Glu
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 Gly Gly Asp Leu Gly Gly Tyr Leu Leu Ala Ser Cys Thr Pro Lys Asp
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 Leu Ile Gln Leu Asn Thr Pro Thr Ala Lys Ala Leu Ala Pro Tyr Ile
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 Glu Gly Ser Leu Asp Ile Pro Val Val Lys Ser Glu Pro Pro Ser Ser
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 Pro Lys Ser Cys Asp Ile Leu Ile Lys Asp Ala Tyr Gln Asn Asn Leu
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 Lys His Ile Asp Leu Ala Leu Pro Arg Asn Ser Leu Ile Ala Ile Ala
 965 970 975
 Gly Pro Gly Ala Ser Gly Lys His Ser Leu Val Phe Asp Ile Leu Tyr
 980 985 990
 Ala Ser Gly Asn Ile Ala Tyr Ala Glu Leu Phe Pro Pro Tyr Ile Arg
 995 1000 1005
 Gln Gly Leu Leu Lys Glu Thr Pro Leu Pro Ser Val Gly Glu Val Lys
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 Gly Leu Ser Pro Val Ile Ser Val Arg Lys Cys Ser Ser Ser Asn Arg
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 Ser Tyr Lys Asp Asp Tyr Val Thr Ile Thr Ser Pro Ile Pro Leu Gly
 1090 1095 1100
 Ser Asp Leu Glu Ile Phe Leu Gln Glu Lys Gln Lys Glu Gly Phe Ile
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Lys Leu Tyr Ser Glu Gly Asn Leu Tyr Asp Leu Asp Glu Arg Leu Pro
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 Leu Asn Leu Ile Glu Pro Ala Ile Val Ile Gln His Thr Lys Val Ser
 1140 1145 1150
 Pro Lys Asn Ser Ser Ser Leu Leu Ser Ala Ile Ser Val Ala Phe Ser
 1155 1160 1165
 Leu Ser Ser Glu Ile Trp Ile Tyr Ile Ser Gln Lys Lys Gln Arg Lys
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 Leu Ser Tyr Ser Leu Gly Trp Lys Asp Lys Lys Gly Arg Leu Tyr Pro
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 Glu Ile Thr His Gln Leu Leu Ser Ser Asp His Pro Glu Gly Arg Cys
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 Leu Thr Cys Gly Gly Arg Gly Glu Ile Leu Lys Ile Ser Leu Glu Glu
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 His Lys Glu Lys Ile Ala His Tyr Thr Pro Leu Glu Phe Phe Ser Leu
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 Phe Phe Pro Lys Ser Tyr Met Lys Pro Val Gln Lys Leu Leu Lys Asp
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 Glu Asn Ala Ser Gln Pro Leu Lys Leu Leu Thr Thr Lys Glu Phe Leu
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 Asn Phe Cys Arg Gly Ser Ser Glu Phe Pro Gly Met Asn Ala Leu Leu
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 Met Glu Gln Leu Asp Thr Glu Ser Asp Ser Pro Leu Ile Lys Pro Leu
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 Leu Ala Leu Thr Ser Cys Pro Ala Cys Lys Gly Ser Gly Leu Asn Asp
 1315 1320 1325
 Tyr Ala Asn Tyr Val Arg Ile Asn Asn Thr Ser Leu Leu Asp Ile Tyr
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 Gln Glu Asp Ala Thr Phe Leu Glu Ser Phe Leu Asn Thr Ile Gly Thr
 1345 1350 1355 1360
 Asp Asp Thr Arg Ser Ile Ile Gln Asp Leu Met Asn Arg Leu Thr Phe
 1365 1370 1375
 Ile Ser Lys Val Gly Leu Ser Tyr Ile Thr Leu Gly Gln Arg Gln Asp
 1380 1385 1390
 Thr Leu Ser Asp Gly Glu Asn Tyr Arg Leu His Leu Ala Lys Lys Ile
 1395 1400 1405
 Ser Ile Asn Leu Thr Asn Ile Val Tyr Leu Phe Glu Glu Pro Leu Ser
 1410 1415 1420
 Gly Leu His Pro Gln Asp Leu Pro Thr Ile Val Gln Leu Leu Lys Glu
 1425 1430 1435 1440
 Leu Val Ala Asn Asn Asn Thr Val Ile Ala Thr Asp Arg Ser Cys Ser
 1445 1450 1455
 Leu Ile Pro His Ala Asp His Ala Ile Phe Leu Gly Pro Gly Ser Gly
 1460 1465 1470
 Pro Gln Gly Gly Phe Leu Met Asp Ser Asp Thr Glu Val Cys Pro Ser
 1475 1480 1485
 Val Asp Leu His Ala Asn Val Pro Gln Thr Glu Val Cys Pro Lys Ala
 1490 1495 1500
 Pro Leu Ser Ile Ser Lys Ala Asn His Thr Arg Gly Ser Asp Arg Thr
 1505 1510 1515 1520
 Leu Lys Val Asn Leu Ser Ile His His Ile Gln Asn Leu Lys Val Ser
 1525 1530 1535
 Ala Pro Leu His Ala Leu Val Ala Ile Gly Gly Val Ser Gly Ser Gly
 1540 1545 1550
 Lys Thr Ser Leu Leu Leu Glu Gly Phe Lys Lys Gln Ala Glu Leu Leu
 1555 1560 1565
 Ile Ala Lys Gly Thr Thr Thr Phe Ser Asp Leu Val Val Ile Asp Ser
 1570 1575 1580
 His Pro Ile Ala Ser Ser Gln Arg Ser Asp Ile Ser Thr Tyr Phe Asp
 1585 1590 1595 1600

Ser Phe Val Arg Tyr Gly Glu Asp Ile Glu Thr Met Arg Lys Cys Leu
 195 200 205
 Ala Asp Leu Gly Asn Pro Lys Met Pro Ile Ile Ala Lys Ile Glu Asn
 210 215 220
 Arg Leu Gly Val Glu Asn Phe Ser Lys Ile Ala Lys Leu Ala Asp Gly
 225 230 235 240
 Ile Met Ile Ala Arg Gly Asp Leu Gly Ile Glu Leu Ser Val Val Glu
 245 250 255
 Val Pro Asn Leu Gln Lys Met Met Ala Lys Val Ser Arg Glu Thr Gly
 260 265 270
 His Phe Cys Val Thr Ala Thr Gln Met Leu Glu Ser Met Ile Arg Asn
 275 280 285
 Val Leu Pro Thr Arg Ala Glu Val Ser Asp Ile Ala Asn Ala Ile Tyr
 290 295 300
 Asp Gly Ser Ser Ala Val Met Leu Ser Gly Glu Thr Ala Ser Gly Ala
 305 310 315 320
 His Pro Val Ala Ala Val Lys Ile Met Arg Ser Val Ile Leu Glu Thr
 325 330 335
 Glu Lys Asn Leu Ser His Asp Ser Phe Leu Lys Leu Asp Asp Ser Asn
 340 345 350
 Ser Ala Leu Gln Val Ser Pro Tyr Leu Ser Ala Ile Gly Leu Ala Gly
 355 360 365
 Ile Gln Ile Ala Glu Arg Ala Asp Ala Lys Ala Leu Ile Val Tyr Thr
 370 375 380
 Glu Ser Gly Ser Ser Pro Met Phe Leu Ser Lys Tyr Arg Pro Lys Phe
 385 390 395 400
 Pro Ile Ile Ala Val Thr Pro Ser Thr Ser Val Tyr Tyr Arg Leu Ala
 405 410 415
 Leu Glu Trp Gly Val Tyr Pro Met Leu Thr Gln Glu Ser Asp Arg Ala
 420 425 430
 Val Trp Arg His Gln Ala Cys Ile Tyr Gly Ile Glu Gln Gly Ile Leu
 435 440 445
 Ser Asn Tyr Asp Arg Ile Leu Val Leu Ser Arg Gly Ala Cys Met Glu
 450 455 460
 Glu Thr Asn Asn Leu Thr Leu Thr Ile Val Asn Asp Ile Leu Thr Gly
 465 470 475 480
 Ser Glu Phe Pro Glu Thr
 485

<210> 100
 <211> 468
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 100
 Leu Val Gly Lys Lys Phe His Gln Ile Lys Arg Thr Ile Leu Glu Ala
 1 5 10 15
 Pro Leu Tyr Tyr Leu Val Ser Gly Ile Ile Ala Leu Cys Arg His Thr
 20 25 30
 Pro Arg Ser Phe Leu Thr Gly Leu Gly Lys Gly Phe Gly Phe Leu Ala
 35 40 45
 Phe Tyr Ile Ile Ser Asp Tyr Arg Lys Thr Ala Leu Thr Asn Leu Ala
 50 55 60
 Leu Ala Phe Pro Glu Lys Thr Phe Asp Glu Arg Tyr Lys Ile Ala Arg
 65 70 75 80
 Gln Ser Leu Gln His Leu Ile Ile Thr Leu Leu Glu Leu Leu Ala Ile
 85 90 95
 Glu Gln Leu Val Gly Asn Ile Asp Lys Leu Ile Thr Ile Val Thr Ser
 100 105 110
 Ser Arg Asn Pro Lys Gly Phe Ser Ser Glu Glu Val Ile Ser Asn Glu
 115 120 125

Asp Leu Glu Glu Thr Phe Lys Asn Leu Gln Glu Lys Gln Gly Leu Ile
 130 135 140
 Leu Phe Cys Gly His Gln Ala Asn Trp Glu Leu Pro Phe Leu Tyr Ile
 145 150 155 160
 Thr Lys Asn Tyr Pro Gly Ile Ala Phe Ala Lys Ala Ile Lys Asn Gln
 165 170 175
 Arg Leu Ser Lys Lys Ile Phe Ala Leu Arg Glu Val Phe Lys Gly Lys
 180 185 190
 Ile Val Pro Pro Lys Asn Gly Ile Gln Gln Gly Ile Glu Ala Leu Asn
 195 200 205
 Gln Gly Lys Leu Val Gly Ile Val Gly Asp Gln Ala Leu Leu Met Ser
 210 215 220
 Ser Tyr Thr Tyr Pro Leu Phe Gly Ser Pro Ala Phe Thr Thr Thr Ser
 225 230 235 240
 Pro Ala Leu Leu Ala Tyr Lys Thr Gly Phe Pro Val Ile Ala Val Asn
 245 250 255
 Val Ser Arg Gln Ala Lys Gly Phe Glu Val Ile Pro Ser Ala Lys Leu
 260 265 270
 Tyr Ala Asn Lys Ser Leu Pro Met Lys Glu Ser Val Ala Ile Leu Met
 275 280 285
 Asp Gln Met Met Gly Phe Leu Glu Lys Gly Ile Ala Ser Gln Pro Glu
 290 295 300
 Gln Trp Met Trp Ile His Lys Arg Trp Lys Arg Lys Ile Ser Asn Val
 305 310 315 320
 Ile Lys Lys Lys Tyr Arg Tyr Ser His Ile Leu Val Phe Val Asp Gln
 325 330 335
 Val Ser Ser His Phe Ser Phe Leu Lys Ala Leu Ala Glu Cys Phe Ser
 340 345 350
 Gly Thr Thr Leu His Leu Ala Leu Gly Asn Ala Asp His Leu Glu Glu
 355 360 365
 Leu Gln Glu Gln Phe Pro Glu Tyr Ser Leu Ile Gln Leu Arg Asn Asp
 370 375 380
 Gln Asp Ile Leu Ala Leu Pro Asn Cys Tyr Pro Ala Ile Phe Asp Leu
 385 390 395 400
 Thr Asn Asn Leu Gln His Leu Tyr Lys His Phe Arg Lys Thr Gly Ser
 405 410 415
 Cys Ala Val Tyr Ser Lys Arg Phe Leu Glu Lys Ser Leu Asp His Pro
 420 425 430
 Gln Ala Pro Leu Lys Asn Ser Leu Arg Ile Phe Tyr Ser Lys Asn Leu
 435 440 445
 Lys Asp Lys Glu Arg Lys Asn Phe Lys Val Lys Ser Lys Gly Pro Arg
 450 455 460
 Leu Thr Val Glu
 465

<210> 101
 <211> 113
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 101
 Tyr Tyr Cys Ala Ser Tyr Tyr Leu Lys Ile Ser Arg Phe Ala Ala Lys
 1 5 10 15
 His Ala Pro Glu Arg Asn Met Leu Asn Ser Ile Val Thr Thr Arg Thr
 20 25 30
 Arg Thr Ala Ala Thr Leu Leu Ile Pro Lys Val Ile Pro Glu Ala Pro
 35 40 45
 Ser Thr Pro Val Gln Ile Lys Met Ile Ser Ile Lys Glu Thr Ile Ala
 50 55 60
 Val Arg Ala Lys Ser Pro Ala Asp Thr Val Ala Thr Phe Ala Leu Asp
 65 70 75 80

Ser Glu Leu Ser Glu Gln Gln Gln Thr Val Leu Ile Ala Ala Ser Lys
85 90 95
Pro Arg Pro Lys Gln Ser Ile Lys His Ile Lys Phe Pro Leu Thr Lys
100 105 110
Phe

<210> 102
<211> 434
<212> PRT
<213> Chlamydia pneumoniae

<400> 102
Arg Thr Gln Lys Lys Thr Phe Ile Leu Leu Asp Leu Glu Thr Met Ile
1 5 10 15
Lys Phe Leu Ser Gln Leu Phe Ile Arg His Trp Pro Arg Lys Val Val
20 25 30
Ser Leu Gly Phe Ala Ile Ile Ile Trp Ile Leu Val Gly Gln Ser Val
35 40 45
Thr Ile Thr Arg Thr Leu Thr Asn Val Pro Val Arg Ile Val Asp Leu
50 55 60
His Pro Asp Gln Thr Val Leu Gly Leu Gln Lys Ser Gly Phe Leu Asn
65 70 75 80
Lys Lys Val Ser Leu Thr Ile Thr Gly Asn Lys Asn Thr Val Gln Asp
85 90 95
Leu Arg Pro Ser Asn Leu Glu Val Val Ile Ser Ala Ala Asn His Thr
100 105 110
Glu Ser Trp Ile Ala Thr Ile Asp Lys His Asn Leu Val Ser Val Asp
115 120 125
His Glu Ile Asn Ile Arg Lys Asp Ile His Ser Val Asp Ala Asn Asp
130 135 140
Ile Phe Val Arg Leu Thr Gln Tyr Val Thr Glu Asp Ile Leu Leu Thr
145 150 155 160
Ile Thr Lys Pro Ile Gly Ser Pro Pro Lys Gly Tyr Glu Tyr Leu Asp
165 170 175
Val Trp Pro Lys Tyr Leu Asn Gln Lys Val Ser Gly Pro Lys Glu Tyr
180 185 190
Ile Asn Ala Leu Lys Glu Gln Gly Leu Glu Leu Thr Phe Asn Leu Asn
195 200 205
Lys Ile Ser Phe Glu Glu Leu Glu Arg Asn Arg Ile Ala Gln Gly Ser
210 215 220
His Asp Glu Ile Ile Phe Pro Ile Pro Lys Glu Trp Lys Lys Ile Leu
225 230 235 240
Ile Pro Phe Glu Asn Thr Phe Met Asp Leu Asn Asp Pro Gln Ala Asp
245 250 255
Phe Leu Arg Leu Leu Phe Leu Lys Arg Glu Cys Ile Pro Leu Asn Leu
260 265 270
Asn Leu Pro Val Phe Leu Phe Phe Pro Val Thr Phe Ile Gln Thr Met
275 280 285
Asn Pro Leu Glu Tyr Ser Leu Asp Pro Val Pro Pro Ile Ile Leu Asn
290 295 300
His Gly Ile His Gln Ile Asn Ile Pro Leu Tyr Val Lys Asp Val Ser
305 310 315 320
Arg Gln Phe Leu Asp Val Val Lys Asn Asn Met Val Leu Thr Ile Val
325 330 335
Met Pro Ser Pro Gln Asp Pro Ser Ser Ile Asn Trp Ala Ile Glu Phe
340 345 350
Leu Asp Glu Lys Thr Leu Glu Asn Thr Phe Leu Gln Thr Ile Ile Ala
355 360 365
Gln Glu His Gly Ile Leu His Asp Ile Ala Leu Ile Asp Glu Ala Gly
370 375 380

Ile Arg His Arg Phe Arg Glu Tyr Leu Arg Lys Leu Ala Leu Phe Thr
 385 390 395 400
 Ala Asp Gly Glu Pro Leu Asn Leu Ile Ala Glu Ile Lys Asn Asn Lys
 405 410 415
 Val Val Ile Gln Thr Lys Thr Lys Glu Thr Thr Lys Leu Tyr Lys Lys
 420 425 430
 Glu Trp

<210> 103
 <211> 282
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 103
 Pro Ser Thr Leu Cys Asn Phe Ser Gln Tyr Thr Thr Gln Gly Pro Ser
 1 5 10 15
 Lys Thr Met Pro Phe Asp Ile Thr Tyr Tyr Thr Thr Pro Leu Leu Glu
 20 25 30
 Ile Ile Leu Ile Trp Val Met Leu Asn Tyr Leu Leu Lys Phe Phe Trp
 35 40 45
 Gly Thr Arg Ala Met Asp Val Val Phe Gly Leu Leu Ala Phe Leu Phe
 50 55 60
 Leu Phe Val Leu Ala Asp Lys Leu His Leu Pro Ile Ile Arg Arg Leu
 65 70 75 80
 Met Leu His Val Val Asn Ile Ala Ala Ile Val Val Phe Ile Ile Phe
 85 90 95
 Gln Pro Glu Ile Arg Leu Ala Leu Ser Arg Ile Arg Phe His Gly Lys
 100 105 110
 Lys Phe Phe Ile Asp Thr Gln Glu Gln Phe Val Glu Gln Leu Ala Ala
 115 120 125
 Ser Ile Tyr Gln Leu Ser Glu Arg Gln Ile Gly Ala Leu Val Val Leu
 130 135 140
 Glu Asn Lys Asp Ser Phe Asp Glu Tyr Leu Ser Phe Ser Ser Val Lys
 145 150 155 160
 Ile Asn Ala Thr Phe Ser Glu Glu Leu Leu Glu Thr Ile Phe Glu Pro
 165 170 175
 Ser Ser Pro Leu His Asp Gly Ala Val Ile Leu Arg Gly Asp Ile Leu
 180 185 190
 Ala Tyr Ala Arg Val Val Leu Pro Leu Ala His Asp Thr Thr Gln Leu
 195 200 205
 Ser Arg Ser Met Gly Thr Arg His Arg Ala Ala Leu Gly Ala Ser Gln
 210 215 220
 Arg Ser Asp Ala Leu Ile Ile Thr Val Ser Glu Glu Asn Gly Ser Val
 225 230 235 240
 Ser Leu Ser Arg Asp Gly Leu Leu Thr Arg Gly Val Lys Ile Asp Arg
 245 250 255
 Phe Lys Ala Val Leu Arg Ser Ile Leu Ser Pro Lys Glu His Lys Arg
 260 265 270
 Lys Pro Leu Phe Ser Trp Ile Trp Lys Arg
 275 280

<210> 104
 <211> 456
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 104
 Phe Tyr Ile Gln Phe Trp Lys Phe Met Asp Ala Leu Ile Leu Ser Arg
 1 5 10 15

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<210> 105
<211> 349
<212> PRT
<213> Chlamydia pneumoniae
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<400> 105
 Asn Arg Gly Ile Phe Met Glu Leu Ser Leu Thr Ser Leu Leu Pro Leu
 1 5 10 15
 Ala Trp Tyr Val Ile Leu Gly Val Ala Val Phe Ala Tyr Ser Phe Gly
 20 25 30
 Asp Gly Phe Asp Leu Gly Leu Gly Ala Val Tyr Leu Lys Ala Lys Glu
 35 40 45
 Asp Lys Glu Arg Arg Ile Leu Asn Ser Ile Gly Pro Val Trp Asp
 50 55 60
 Gly Asn Glu Val Trp Leu Val Ile Ile Val Gly Gly Leu Phe Ala Gly
 65 70 75 80
 Phe Pro Ala Cys Tyr Ala Thr Leu Leu Ser Ile Phe Tyr Met Pro Ile
 85 90 95
 Trp Thr Leu Val Leu Leu Tyr Ile Phe Arg Gly Cys Ser Leu Glu Phe
 100 105 110
 Arg Ser Lys Ser Glu Ser Val Ser Trp Lys Ile Phe Trp Asp Ile Ile
 115 120 125
 Phe Ile Cys Ser Gly Thr Ala Ile Ser Phe Phe Leu Gly Thr Ile Val
 130 135 140
 Gly Asn Leu Ile Leu Gly Leu Pro Leu Ser Pro Asp Thr Ser Tyr Ala
 145 150 155 160
 Ser Leu Ser Trp Ile Leu Phe Phe Arg Pro Tyr Ala Ala Leu Cys Gly
 165 170 175
 Ala Val Val Ala Ser Ala Phe Ala Ile His Gly Ser Cys Phe Ala Leu
 180 185 190
 Met Lys Thr Ser Asp Ser Leu Asn Ala Arg Ile Ala Gln Gln Phe Pro
 195 200 205
 Tyr Ile Leu Ser Ser Phe Leu Val Phe Tyr Val Leu Phe Leu Gly Ala
 210 215 220
 Ser Leu Ile Ser Ile Pro Lys Arg Phe Asp Ala Phe Pro Thr Tyr Pro
 225 230 235 240
 Leu Leu Ile Leu Leu Ile Ala Leu Thr Ser Cys Cys Cys Val Ala Ala
 245 250 255
 Lys Thr Ser Val Ser Lys Lys Arg Tyr Gly Tyr Ala Phe Ile Tyr Ser
 260 265 270
 Thr Leu Asn Leu Leu Ser Leu Ile Leu Ser Ala Ala Thr Leu Thr Phe
 275 280 285
 Pro Asn Ile Leu Leu Ser Thr Val Asp Pro Gln Tyr Ser Tyr Thr Ile
 290 295 300
 Tyr Asn Ser Ala Val Glu Thr Lys Thr Leu Lys Ser Leu Leu Ile Ile
 305 310 315 320
 Val Leu Ile Gly Leu Pro Phe Ile Ile Thr Tyr Thr Cys Tyr Ile Tyr
 325 330 335
 Arg Val Phe Arg Gly Lys Thr Asn Phe Pro Ser Ile Tyr
 340 345

<210> 106
 <211> 403
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 106
 Glu Lys Ser Met Arg Met Leu Gln Ile Ser Met Leu Leu Leu Ala Leu
 1 5 10 15
 Gly Thr Ala Ile Asn Ser Pro Ala Ile Tyr Ala Ala Asp Ser Gln Ser
 20 25 30
 Val Ser Phe Pro Glu Gln Leu Pro Ser Ser Phe Thr Gly Glu Ile Lys
 35 40 45
 Gly Asn His Val Arg Met Arg Leu Ala Pro His Thr Asp Gly Thr Ile
 50 55 60

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Arg | Glu | Phe | Ser | Lys | Gly | Asp | Leu | Val | Ala | Val | Ile | Gly | Glu | Ser | 65 | 70 | 75 | 80 |
| Lys | Asp | Tyr | Tyr | Val | Ile | Ser | Ala | Pro | Pro | Gly | Ile | Thr | Gly | Tyr | Val | 85 | 90 | 95 | |
| Phe | Arg | Ser | Phe | Val | Leu | Asp | Asn | Val | Val | Glu | Gly | Glu | Gln | Val | Asn | 100 | 105 | 110 | |
| Val | Arg | Leu | Glu | Pro | Ser | Thr | Ser | Ala | Pro | Val | Leu | Val | Arg | Leu | Ser | 115 | 120 | 125 | |
| Arg | Gly | Thr | Gln | Ile | Gln | Pro | Ala | Ser | Gln | Glu | Pro | His | Gly | Lys | Trp | 130 | 135 | 140 | |
| Leu | Glu | Val | Val | Leu | Pro | Ser | Gln | Cys | Val | Phe | Tyr | Val | Ala | Lys | Asn | 145 | 150 | 155 | 160 |
| Phe | Val | Ala | Asn | Lys | Gly | Pro | Ile | Glu | Leu | Tyr | Thr | Gln | Arg | Glu | Gly | 165 | 170 | 175 | |
| Gln | Lys | Lys | Ile | Ala | Met | Asp | Leu | Ile | Asn | Ser | Ala | Leu | Asn | Phe | Ala | 180 | 185 | 190 | |
| His | Ile | Glu | Leu | Glu | Lys | Ser | Leu | Asn | Glu | Ile | Asp | Leu | Glu | Ala | Ile | 195 | 200 | 205 | |
| Tyr | Lys | Lys | Ile | Asn | Leu | Val | Gln | Ser | Glu | Glu | Phe | Lys | Asp | Val | Pro | 210 | 215 | 220 | |
| Gly | Ile | Gln | Gly | Leu | Ile | Gln | Lys | Ala | Leu | Glu | Glu | Ile | Gln | Asp | Ala | 225 | 230 | 235 | 240 |
| Tyr | Leu | Ser | Lys | Ser | Leu | Glu | Ser | Gln | Asn | Thr | Ser | Ile | Ala | Ser | Ser | 245 | 250 | 255 | |
| Gln | Cys | Ser | Thr | Pro | Lys | Val | Ser | Ser | Ser | Glu | Val | Thr | Thr | Ser | Leu | 260 | 265 | 270 | |
| Leu | Ser | Arg | His | Ile | Arg | Lys | Gln | Thr | Ala | Leu | Lys | Thr | Ala | Pro | Leu | 275 | 280 | 285 | |
| Thr | Gln | Gly | Arg | Glu | Asn | Leu | Glu | Tyr | Ser | Leu | Phe | Arg | Ile | Trp | Ala | 290 | 295 | 300 | |
| Ser | Met | Gln | Gln | Gly | Asn | Asp | His | Ser | Glu | Ala | Leu | Thr | Gln | Glu | Ala | 305 | 310 | 315 | 320 |
| Phe | Tyr | Arg | Ala | Glu | Gln | Lys | Lys | Lys | Gln | Val | Leu | Ala | Gly | Val | Leu | 325 | 330 | 335 | |
| Glu | Val | Tyr | Pro | His | Val | Val | Lys | Asn | Asn | Pro | Gly | Asp | Tyr | Leu | Leu | 340 | 345 | 350 | |
| Lys | Ala | Gln | Glu | Asn | Thr | Ile | Ala | Phe | Leu | Tyr | Gly | Thr | Ser | Ile | Asn | 355 | 360 | 365 | |
| Leu | Glu | Gln | Trp | Leu | Gly | Lys | Arg | Val | Thr | Val | Glu | Cys | Leu | Pro | Arg | 370 | 375 | 380 | |
| Pro | Asn | Asn | His | Phe | Ala | Phe | Pro | Ala | Tyr | Tyr | Val | Val | Gly | Ile | Lys | 385 | 390 | 395 | 400 |
| Glu | Ala | Ser | | | | | | | | | | | | | | | | | |

<210> 107

<211> 285

<212> PRT

<213> Chlamydia pneumoniae

<400> 107

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|
| Tyr | Val | Pro | Phe | Arg | Lys | Phe | Ser | Asn | Gln | Asn | Pro | Met | Leu | Leu | Ile | 1 | 5 | 10 | 15 |
| Tyr | Cys | Lys | Lys | Lys | Glu | Ile | His | Leu | Gln | Trp | Pro | Gln | Thr | Ala | Lys | 20 | 25 | 30 | |
| Ile | Arg | Phe | Thr | Pro | Lys | Ile | Ala | Met | Lys | Val | Lys | Ile | Asn | Asp | Gln | 35 | 40 | 45 | |
| Leu | Ile | Cys | Ile | Pro | Pro | Phe | Ile | Ser | Ala | Arg | Trp | Ser | Gln | Ile | Ala | 50 | 55 | 60 | |
| Phe | Ile | Glu | Ser | Gln | Glu | Gly | Glu | Asn | Lys | Asp | Gln | Gly | Thr | Leu | Arg | 65 | 70 | 75 | 80 |

Leu His Leu Ile Asp Gly Lys Ile Ile Ser Ile Pro Asn Leu Asp Gln
 85 90 95
 Ser Ile Ile Asp Ile Ala Phe Gln Glu His Leu Leu Tyr Leu Glu Thr
 100 105 110
 Ser Gln Ser Gly Lys Glu Asp Ser Arg Asp Asp Asp Lys Leu Gly Val
 115 120 125
 Gly Val Leu Met Asn Val Leu Gln Gln Ile Thr Lys Gly Asn Asp Ile
 130 135 140
 Gln Val Leu Pro Lys Asn Leu Ile Ser Pro Leu Phe Ser Gly Thr Asn
 145 150 155 160
 Pro Ile Glu Ala Ile Leu Gln His Thr Pro Glu His Lys Asp His Pro
 165 170 175
 Asp Ala Pro Thr Asp Val Leu Glu Lys Met Ala Asp Val Ile Arg Val
 180 185 190
 Leu Ser Gly Asn Asn Ala Thr Leu Leu Pro Arg Pro Glu Pro His Cys
 195 200 205
 Asn Cys Met His Cys Gln Ile Gly Arg Val Met Asn Glu Glu Asp Thr
 210 215 220
 Leu Ala Val Ser Asp Lys Asp Leu Thr Phe Arg Thr Trp Asp Ile Met
 225 230 235 240
 Gln Ser Gly Asp Lys Leu Tyr Ile Val Thr Asn Pro Leu Asn Pro Ser
 245 250 255
 Asp Gln Phe Ser Val Tyr Leu Gly Pro Ile Gly Cys Thr Cys Gly
 260 265 270
 Glu Pro Asn Cys Glu His Ile Lys Ala Val Leu Tyr Thr
 275 280 285

<210> 108

<211> 434

<212> PRT

<213> Chlamydia pneumoniae

<400> 108

Glu Lys Val Arg Thr Gln Met Lys Lys Thr Met Val Ile Asp Thr Ser
 1 5 10 15
 Val Phe Ile Tyr Asp Pro Glu Ala Leu Phe Ser Phe Glu Asn Thr Arg
 20 25 30
 Ile Ile Ile Pro Phe Pro Val Ile Glu Glu Leu Glu Ala Phe Gly Lys
 35 40 45
 Phe Arg Asp Glu Ser Ala Lys Asn Ala Ser Arg Ala Leu Ser Asn Ile
 50 55 60
 Arg Leu Leu Leu Glu Asn Ala Lys Thr Lys Val Thr Asp Gly Val Leu
 65 70 75 80
 Leu Pro Ser Gly Ser Glu Leu Arg Ile Glu Val Ala Pro Leu Ser Asn
 85 90 95
 Asp Asp Arg Arg Gly Lys Leu Leu Thr Leu Glu Leu Leu Lys Ile Ile
 100 105 110
 Ala Lys Arg Glu Pro Met Val Phe Val Thr Lys Ser Leu Gly Arg Arg
 115 120 125
 Val Arg Ala Glu Ala Leu Gln Ile Glu Ser Arg Asp Tyr Glu Ser Lys
 130 135 140
 Arg Phe Ser Phe Arg Ser Leu Tyr Arg Gly Phe Arg Glu Leu Gln Val
 145 150 155 160
 Ser Gln Glu Asp Ile Glu Asn Phe Tyr Lys Asn Gly Tyr Leu Asp Leu
 165 170 175
 Pro Leu Asp Val Val Ser Ser Pro Asn Glu Tyr Phe Phe Met Ser Ala
 180 185 190
 Gly Glu Asn His Phe Ala Leu Gly Arg Tyr Tyr Val Ser Glu Gly Lys
 195 200 205
 Ile Ile Ala Leu Lys Ala Met Asp Lys Ser Val Trp Gly Ile Lys Pro
 210 215 220

Leu Asn Thr Glu Gln Arg Cys Ala Leu Asp Leu Leu Leu Arg Asp Asp
 225 230 235 240
 Val Lys Leu Val Thr Leu Ile Gly Gln Ala Gly Ser Gly Lys Thr Ile
 245 250 255
 Leu Ala Leu Ala Ala Met His Lys Val Phe Asp Lys Glu Thr Tyr
 260 265 270
 Asn Lys Val Leu Val Ser Arg Pro Ile Val Pro Met Gly Arg Asp Ile
 275 280 285
 Gly Phe Leu Pro Gly Leu Lys Glu Asp Lys Leu Met His Trp Met Gln
 290 295 300
 Pro Ile Tyr Asp Asn Met Glu Val Leu Phe Ser Ile Asn Gln Met Gly
 305 310 315 320
 Asn Ser Ser Glu Ala Leu Gln Ala Leu Met Asp Ala Lys Lys Leu Glu
 325 330 335
 Met Glu Ala Leu Thr Tyr Ile Arg Gly Arg Ser Leu Pro Lys Ala Phe
 340 345 350
 Ile Ile Ile Asp Glu Ala Gln Asn Leu Thr Pro His Glu Ile Lys Thr
 355 360 365
 Ile Ile Ser Arg Ala Gly Lys Gly Thr Lys Ile Val Leu Thr Gly Asp
 370 375 380
 Pro Thr Gln Ile Asp Ser Leu Tyr Phe Asp Glu Asn Ser Asn Gly Leu
 385 390 395 400
 Thr Tyr Leu Val Gly Lys Phe His His Leu Ala Leu Tyr Gly His Met
 405 410 415
 Phe Met Thr Arg Thr Glu Arg Ser Glu Leu Ala Ala Ala Ala Ala Thr
 420 425 430
 Ile Leu

<210> 109
 <211> 310
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 109
 Lys Lys Ser Pro Pro Pro Val Thr Pro Lys Glu Ile Pro Thr Gln Pro
 1 5 10 15
 Lys Pro Pro Ile Pro Gln Arg Pro Glu Val Ser Pro Thr Pro Thr Asp
 20 25 30
 His Ile Val Pro Gly Ser Ile Glu Ala Ser Pro Ile Leu Gly Lys Lys
 35 40 45
 Pro Ser Pro Asp Ser Met Val Ser Pro Leu Ser Leu Phe His Lys Met
 50 55 60
 Leu Leu Glu Asn Trp Thr Pro Val Glu Glu Pro Phe Pro Trp Pro Pro
 65 70 75 80
 Ala Glu Lys Asn Gln Lys Ile Phe Ala Trp Ala Leu Asn Gln Ser Lys
 85 90 95
 Leu Ile Phe Val Ser Thr Ser Gly Asn Ile Ala Gln Pro Arg Leu Val
 100 105 110
 Thr Asp Ser Met Ser Met Met Ile Val Asn Ala Ala Asn Arg Thr Met
 115 120 125
 Ser Arg Asp Gly Ala Gly Thr Asn Gln Val Leu Ser Ala Ala Val Ser
 130 135 140
 Val Asp Ser Trp Gly Leu Ser Gln Arg Pro Leu Asn Pro Glu Arg Gln
 145 150 155 160
 Gly Thr Pro Leu Asn Glu Gly Glu Cys Arg Ala Gly Met Trp Arg Asn
 165 170 175
 Ala Asp Gly Ser Asn His Thr Gly Lys Gln Gly Lys Pro His Tyr Leu
 180 185 190
 Ala Gln Leu Leu Gly Pro Lys Ala Val Asp His His Asn Lys Ser Gln
 195 200 205

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ala | Phe | Asp | Arg | Cys | Lys | Asn | Ala | Tyr | Leu | Asn | Cys | Phe | Ser | Leu |
| 210 | | | | | | 215 | | | | | 220 | | | | |
| Ala | Gln | Thr | Leu | Gly | Val | Thr | Phe | Leu | Gln | Ile | Pro | Leu | Ile | Ser | Ser |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Gly | Ile | Tyr | Ala | Pro | Pro | Glu | Asn | Arg | Lys | Lys | Pro | Asn | Ser | Glu | Glu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Asn | Lys | Val | Arg | Met | Arg | Trp | Ile | His | Ala | Val | Lys | Cys | Ala | Leu | Val |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ala | Ala | Met | Gln | Glu | Phe | Gly | Asn | Glu | Pro | Gly | Asn | Thr | Asp | Arg | Arg |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Met | Leu | Ile | Val | Leu | Thr | Asp | Leu | Lys | Thr | Pro | Ala | Ile | Thr | Asp | Pro |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Lys | Lys | Lys | Ser | His | Leu | | | | | | | | | | |
| 305 | | | | | 310 | | | | | | | | | | |

<210> 110
 <211> 195
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 110 | | | | | | | | | | | | | | | |
| Lys | Asn | Leu | Phe | His | Tyr | Lys | Ala | Ile | Leu | Met | Ser | Ile | Phe | Asn | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Glu | Val | Phe | Ile | Ile | Ser | His | Arg | His | Thr | Pro | Leu | Gly | Gln | Thr | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Thr | Ala | Leu | Arg | Asn | Thr | Pro | Leu | Val | Asn | Pro | Leu | His | Arg | Thr | Asn |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Gln | Arg | Ile | Ala | Ser | Tyr | Ile | Pro | Ile | Phe | Ser | Thr | Phe | Ile | Gly |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Lys | Thr | Leu | Lys | Gly | Ile | Ser | Ser | Leu | Gln | Tyr | Ser | Met | Val | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Met | Thr | Gly | Asn | Phe | Ser | Ser | Val | Cys | Lys | Thr | Leu | Pro | Cys | Pro | Glu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ile | Tyr | Glu | Glu | Leu | Pro | Lys | Val | Arg | Lys | Glu | Ala | Trp | Leu | Glu | Ile |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Phe | Gly | Ile | Lys | Ala | Leu | Tyr | Tyr | Leu | Val | Leu | Gly | Val | Ile | Lys | Ile |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ile | Lys | Leu | Ile | Val | Arg | Tyr | Leu | Cys | Pro | Cys | Cys | Arg | Pro | Pro | Glu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Pro | Arg | Glu | Pro | Gln | Asn | Pro | Leu | Thr | Pro | Thr | Pro | Leu | Asp | Met | Gly |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gln | Gln | Ile | Asp | Ala | Ile | Phe | Ser | Thr | Pro | Thr | Ser | Pro | Thr | Gly | Phe |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Lys | Asp | Pro | Phe | Leu | Asp | Asp | Leu | Leu | Gln | Glu | Asp | Lys | Lys | Lys | Ala |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Pro | His | Leu | | | | | | | | | | | | | |
| | | 195 | | | | | | | | | | | | | |

<210> 111
 <211> 1046
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 111 | | | | | | | | | | | | | | | |
| Arg | Gln | Lys | Met | Thr | Ala | Asp | Glu | Val | Gly | Lys | Asn | Ser | Phe | Ala | Lys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Lys | Glu | Glu | Gln | Val | Leu | Lys | Phe | Trp | Lys | Asp | Asn | Gln | Ile | Phe | Glu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Lys | Ser | Leu | Gln | Asn | Arg | Gln | Gly | Lys | Thr | Leu | Tyr | Ser | Phe | Tyr | Asp |
| | | 35 | | | | | 40 | | | | | 45 | | | |

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Pro | Pro | Phe | Ala | Thr | Gly | Leu | Pro | His | Tyr | Gly | His | Leu | Leu | Ala | 50 | 55 | 60 |
| Ser | Thr | Ile | Lys | Asp | Val | Val | Gly | Arg | Tyr | Ala | Thr | Met | Asp | Gly | Tyr | 65 | 70 | 75 |
| Tyr | Val | Pro | Arg | Arg | Phe | Gly | Trp | Asp | Cys | His | Gly | Val | Pro | Val | Glu | 85 | 90 | 95 |
| Tyr | Glu | Val | Glu | Lys | Ser | Leu | Ser | Leu | Thr | Ala | Pro | Gly | Ala | Ile | Glu | 100 | 105 | 110 |
| Asp | Phe | Gly | Ile | Ala | Ser | Phe | Asn | Glu | Glu | Cys | Arg | Lys | Ile | Val | Phe | 115 | 120 | 125 |
| Arg | Tyr | Val | His | Glu | Trp | Glu | Tyr | Tyr | Ile | Asn | Arg | Ile | Gly | Arg | Trp | 130 | 135 | 140 |
| Val | Asp | Phe | Ser | Ser | Thr | Trp | Lys | Thr | Met | Asp | Ala | Ser | Phe | Met | Glu | 145 | 150 | 155 |
| Ser | Val | Trp | Trp | Val | Phe | Gln | Ser | Leu | Tyr | Asn | Gln | Gly | Leu | Val | Tyr | 165 | 170 | 175 |
| Glu | Gly | Thr | Lys | Val | Val | Pro | Phe | Ser | Thr | Ala | Leu | Gly | Thr | Pro | Leu | 180 | 185 | 190 |
| Ser | Asn | Phe | Glu | Ala | Ser | Gln | Asn | Tyr | Lys | Glu | Val | Asp | Asp | Pro | Ser | 195 | 200 | 205 |
| Leu | Val | Val | Arg | Met | Pro | Leu | Gln | Asn | Asp | Ser | Ala | Ser | Leu | Leu | Val | 210 | 215 | 220 |
| Trp | Thr | Thr | Thr | Pro | Trp | Thr | Leu | Pro | Ser | Asn | Met | Ala | Ile | Ala | Val | 225 | 230 | 235 |
| Gly | Glu | Thr | Leu | Val | Tyr | Val | Arg | Ile | Gln | Asp | Lys | Lys | Ser | Gly | Glu | 245 | 250 | 255 |
| Gln | Trp | Ile | Leu | Ser | Gln | Gly | Cys | Val | Ser | Arg | Trp | Phe | Ser | Asn | Pro | 260 | 265 | 270 |
| Glu | Glu | Phe | Val | Ile | Leu | Glu | Ser | Phe | Ser | Gly | Lys | Asp | Leu | Val | Gly | 275 | 280 | 285 |
| Arg | Thr | Tyr | Glu | Pro | Pro | Phe | Thr | Phe | Phe | Gln | Ser | Lys | Arg | Glu | Glu | 290 | 295 | 300 |
| Gly | Ala | Phe | Arg | Val | Ile | Ala | Ala | Ser | Phe | Val | Glu | Glu | Ser | Glu | Gly | 305 | 310 | 315 |
| Thr | Gly | Val | Val | His | Met | Ala | Pro | Ala | Phe | Gly | Glu | Gly | Asp | Phe | Leu | 325 | 330 | 335 |
| Val | Cys | Lys | Glu | Asn | His | Val | Pro | Leu | Val | Cys | Pro | Val | Asp | Ala | His | 340 | 345 | 350 |
| Gly | Ser | Phe | Thr | Glu | Glu | Ile | Pro | Gln | Tyr | Gln | Gly | Gln | Tyr | Ile | Lys | 355 | 360 | 365 |
| His | Ala | Asp | Lys | Glu | Ile | Ile | Lys | Phe | Leu | Lys | Lys | Glu | Gly | Arg | Ile | 370 | 375 | 380 |
| Phe | Tyr | His | Gly | Thr | Val | Lys | His | Arg | Tyr | Pro | Phe | Cys | Trp | Arg | Thr | 385 | 390 | 395 |
| Asp | Thr | Pro | Leu | Ile | Tyr | Lys | Ala | Val | Asn | Ser | Trp | Phe | Val | Ala | Val | 405 | 410 | 415 |
| Glu | Lys | Ile | Lys | Asp | Lys | Met | Leu | Arg | Ala | Asn | Ser | Ser | Ile | His | Trp | 420 | 425 | 430 |
| Val | Pro | Glu | His | Ile | Gln | Glu | Gly | Arg | Phe | Gly | Lys | Trp | Leu | Glu | Gly | 435 | 440 | 445 |
| Ala | Arg | Asp | Trp | Ala | Ile | Ser | Arg | Asn | Arg | Tyr | Trp | Gly | Thr | Pro | Ile | 450 | 455 | 460 |
| Pro | Ile | Trp | Lys | Ser | Ala | Asp | Gly | Glu | Ile | Leu | Val | Val | Gly | Ser | Ile | 465 | 470 | 475 |
| Arg | Glu | Leu | Glu | Glu | Leu | Thr | Gly | Thr | Gln | Ile | Thr | Asp | Ile | His | Arg | 485 | 490 | 495 |
| His | Phe | Ile | Asp | Asp | Leu | Asn | Ile | Val | Lys | Asp | Gly | Lys | Pro | Phe | His | 500 | 505 | 510 |
| Arg | Ile | Pro | Tyr | Val | Phe | Asp | Cys | Trp | Phe | Asp | Ser | Gly | Ala | Met | Pro | 515 | 520 | 525 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|------|-----|-----|
| Tyr | Ala | Gln | Asn | His | Tyr | Pro | Phe | Glu | Asn | Gln | Lys | Glu | Thr | Glu | Glu |
| 530 | | | | | | 535 | | | | | 540 | | | | |
| Ala | Phe | Pro | Ala | Asp | Phe | Ile | Ala | Glu | Gly | Leu | Asp | Gln | Thr | Arg | Gly |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Trp | Phe | Tyr | Thr | Leu | Thr | Val | Ile | Ser | Ala | Ile | Leu | Phe | Asp | Arg | Pro |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Ala | Phe | Arg | Asn | Ala | Ile | Val | Asn | Gly | Ile | Ile | Leu | Ala | Glu | Asp | Gly |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Asn | Lys | Met | Ser | Lys | Arg | Leu | Asn | Asn | Tyr | Pro | Ser | Pro | Lys | Tyr | Val |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Leu | Asp | Thr | Tyr | Gly | Ala | Asp | Ala | Leu | Arg | Leu | Tyr | Leu | Leu | His | Ser |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Val | Val | Val | Lys | Ala | Glu | Asp | Leu | Arg | Phe | Ser | Asp | Lys | Gly | Ile | Glu |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Gly | Val | Leu | Lys | Gln | Ile | Leu | Leu | Pro | Leu | Thr | Asn | Val | Leu | Ser | Phe |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Phe | Asn | Thr | Tyr | Ala | Glu | Leu | Tyr | Gly | Phe | Asp | Pro | Lys | Ser | Gln | Asp |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Ile | Glu | Pro | Ala | Tyr | Thr | Glu | Ile | Asp | Gln | Trp | Ile | Leu | Ser | Asn | Leu |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Tyr | Ser | Val | Val | Gly | Lys | Val | Arg | Glu | Ser | Met | Ser | Gln | Tyr | His | Leu |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Asn | Phe | Ala | Val | Glu | Pro | Phe | Val | Thr | Phe | Ile | Asp | Asp | Leu | Thr | Asn |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Trp | Tyr | Ile | Arg | Arg | Cys | Arg | Arg | Arg | Phe | Trp | Glu | Ala | Glu | Asp | Thr |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Pro | Asp | Arg | Arg | Ala | Ala | Phe | Ser | Thr | Leu | Tyr | Glu | Val | Leu | Thr | Val |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Phe | Cys | Lys | Val | Ile | Ala | Pro | Phe | Val | Pro | Phe | Leu | Ala | Glu | Asp | Ile |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Tyr | Gln | Lys | Leu | Lys | Leu | Glu | Lys | Glu | Pro | Glu | Ser | Val | His | Leu | Cys |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Asp | Phe | Pro | Gln | Val | Glu | Met | Asp | Lys | Ile | Leu | Pro | Asp | Leu | Glu | Lys |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Arg | Met | His | Asp | Ile | Arg | Glu | Ile | Val | Gly | Leu | Gly | His | Ser | Leu | Arg |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Lys | Glu | His | Lys | Leu | Lys | Val | Arg | Gln | Pro | Leu | Ala | Asn | Phe | Tyr | Val |
| | | | 820 | | | | | 825 | | | | | 830 | | |
| Val | Gly | Ser | Lys | Asp | Arg | Leu | Ser | Leu | Leu | Lys | Thr | Phe | Glu | Gly | Leu |
| | | | 835 | | | | 840 | | | | | 845 | | | |
| Ile | Ala | Glu | Glu | Leu | Asn | Val | Lys | Asn | Val | Ile | Phe | Tyr | Glu | Glu | Ala |
| | 850 | | | | | 855 | | | | | 860 | | | | |
| Pro | Ser | Phe | Ile | Tyr | Thr | Thr | Val | Lys | Pro | Asn | Phe | Arg | Met | Leu | Gly |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 |
| Lys | Lys | Val | Gly | Ser | Lys | Met | Lys | Glu | Val | Gln | Lys | Ala | Leu | Ser | Glu |
| | | | | 885 | | | | | 890 | | | | | 895 | |
| Leu | Pro | Asn | Asn | Ala | Ile | Asp | Lys | Leu | Ile | Gln | Glu | Glu | Thr | Trp | Val |
| | | | 900 | | | | | 905 | | | | | 910 | | |
| Leu | Thr | Ile | Asp | Asp | Arg | Glu | Ile | Ala | Leu | Asp | Gly | Asp | Asp | Val | Val |
| | | 915 | | | | | 920 | | | | | 925 | | | |
| Ile | Cys | Arg | His | Thr | Asp | Pro | Gly | Tyr | Ile | Ala | Arg | Ser | Ser | Ala | Leu |
| | 930 | | | | | 935 | | | | | 940 | | | | |
| Phe | Ser | Val | Ile | Leu | Asp | Cys | Gln | Leu | Arg | Glu | Pro | Leu | Ile | Val | Glu |
| 945 | | | | | 950 | | | | | 955 | | | | | 960 |
| Gly | Ile | Ala | Arg | Glu | Leu | Val | Asn | Lys | Ile | Asn | Thr | Met | Arg | Arg | Asn |
| | | | | 965 | | | | | 970 | | | | | 975 | |
| Gln | Gln | Leu | His | Val | Ser | Asp | Arg | Ile | Ala | Leu | Arg | Ile | Lys | Thr | Thr |
| | | | 980 | | | | | 985 | | | | | 990 | | |
| Glu | Ala | Val | His | Arg | Ala | Phe | Leu | Asp | Tyr | Glu | Asn | Tyr | Ile | Cys | Glu |
| | | 995 | | | | | 1000 | | | | | | 1005 | | |

Glu Thr Leu Ile Ile Ala Tyr Asp Phe Thr Gln Asp Ser Asp Phe Gln
 1010 1015 1020
 Gly Glu Asn Trp Asp Ile Asn Gly His Ala Thr Gln Ile Glu Ile Thr
 1025 1030 1035 1040
 Val Ser Ser Ile Asp Ser
 1045

<210> 112
 <211> 643
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 112
 Leu Ser Tyr Pro Ser Ile Phe Met Lys Gln His Tyr Ser Leu Asn Lys
 1 5 10 15
 Ser Arg His Ile Leu Arg Ser Thr Tyr Lys Leu Leu Lys Ser Lys Lys
 20 25 30
 Leu Ala His Ser Pro Ala Asp Lys Lys Gln Leu Gln Glu Leu Leu Glu
 35 40 45
 Gln Leu Glu Glu Ala Ile Phe Glu His Asp Gln Glu Thr Ala Ser Asp
 50 55 60
 Leu Ala Gln Gln Ala Leu Ala Phe Ser Asn Arg Tyr Pro Asn Ser Phe
 65 70 75 80
 Gly Arg Lys Thr Tyr Glu Leu Ile Lys Ala Leu Leu Phe Ala Gly Val
 85 90 95
 Val Ala Phe Leu Val Arg Gln Phe Trp Phe Glu Leu Tyr Glu Val Pro
 100 105 110
 Thr Gly Ser Met Arg Pro Thr Ile Leu Glu Gln Asp Arg Ile Leu Val
 115 120 125
 Ser Lys Thr Thr Phe Gly Leu His Cys Pro Phe Ala Lys Lys Pro Leu
 130 135 140
 Ala Phe Asn Pro Glu Ser Val Thr Arg Gly Gly Leu Val Val Phe Thr
 145 150 155 160
 Val Gly Asp Leu Pro Ile Pro Asp Ala Asp Thr Lys Tyr Phe Gly Leu
 165 170 175
 Ile Pro Gly Lys Lys Arg Tyr Ile Lys Arg Cys Met Gly Arg Pro Gly
 180 185 190
 Asp Phe Leu Tyr Phe Tyr Gly Gly Lys Ile Tyr Gly Leu Asp Asp Ala
 195 200 205
 Gly Lys Arg Ile Glu Phe Pro Ser Val His Gly Leu Glu Asn Leu Tyr
 210 215 220
 His Val Pro Tyr Ile Ser Phe Asp Gly Thr Thr Ser Ser His Thr Glu
 225 230 235 240
 Gly Gln Lys Thr Ile Ile Asp Phe Lys Gln Phe Asn Gln Ser Tyr Gly
 245 250 255
 Arg Leu Ile Phe Pro Gln Thr Ser Met Tyr Gly Gln Phe Phe Asp His
 260 265 270
 Lys Glu Trp His Gln Asp Glu Pro Asn Lys Leu Lys Asp Pro His Leu
 275 280 285
 Ser Pro Val Ser Tyr Ala Asp Leu Phe Gly Met Gly Asn Tyr Ala Met
 290 295 300
 Val Arg Ile Leu Thr Glu His Gln Ala Arg Thr Ser His Leu Leu Pro
 305 310 315 320
 Asn Pro Gly Ser Pro Thr Lys Val Tyr Leu Glu Ile Cys His Thr Ala
 325 330 335
 Asn Leu Ser Tyr Pro Lys Pro Leu Leu Arg His Tyr Glu His Gln Leu
 340 345 350
 Ser Pro Ala Ile Gln Pro Met Lys Thr Leu Leu Pro Leu Arg Lys Glu
 355 360 365
 His Leu His Leu Ile Arg Asn Asn Leu Thr Thr Ser Arg Phe Ile Val
 370 375 380

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Gln | Gly | Cys | Ala | Tyr | Lys | Tyr | His | Gln | Phe | Lys | Ile | Asn | Thr | Ser |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Gly | Ile | Ala | Lys | Ala | Tyr | Ala | Ile | Leu | Leu | Pro | Lys | Val | Pro | Asp | Gly |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Cys | Tyr | Glu | Tyr | Ser | Lys | Gly | Glu | Ala | Tyr | Gln | Ile | Gly | Phe | Gly | Glu |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ile | Arg | Tyr | Lys | Leu | Lys | Ser | Ser | His | Pro | Leu | Thr | Gln | Leu | Asn | Asp |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Lys | Gln | Val | Ile | Glu | Leu | Phe | Asn | Cys | Gly | Ile | Asn | Phe | Ser | Ser | Ile |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Tyr | Asn | Pro | Val | Asn | Pro | Leu | Gln | Ala | Pro | Leu | Pro | Asn | Arg | Tyr | Ala |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Phe | Phe | Asn | Gln | Gly | Asn | Leu | Tyr | Ile | Met | Asp | Ser | Pro | Val | Phe | Ile |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Lys | Asn | Asp | Pro | Thr | Leu | Gln | Lys | Phe | Val | Thr | Ser | Glu | Thr | Glu | Lys |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Gln | Glu | Gly | Ser | Ser | Glu | Thr | Gln | Pro | Tyr | Ile | Ala | Phe | Val | Asp | Lys |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Gly | Leu | Pro | Pro | Glu | Asp | Phe | Lys | Glu | Phe | Val | Glu | Phe | Ile | His | Asn |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Phe | Gly | Ile | Gln | Val | Pro | Lys | Gly | His | Val | Leu | Val | Leu | Gly | Asp | Asn |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Tyr | Pro | Met | Ser | Ala | Asp | Ser | Arg | Glu | Phe | Gly | Phe | Val | Pro | Met | Glu |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Asn | Leu | Leu | Gly | Ser | Pro | Leu | Cys | Thr | Phe | Trp | Pro | Ile | Gly | Arg | Met |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Gly | Arg | Leu | Thr | Gly | Val | Ser | Ala | Pro | Thr | Thr | Leu | Ser | Gly | Tyr | Leu |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Val | Ser | Gly | Ile | Ala | Leu | Ala | Thr | Gly | Leu | Ser | Leu | Ile | Gly | Tyr | Val |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Tyr | Tyr | Gln | Lys | Arg | Arg | Arg | Leu | Phe | Pro | Lys | Lys | Glu | Glu | Lys | Asn |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| His | Lys | Lys | | | | | | | | | | | | | |

<210> 113
 <211> 276
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 113

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Leu | Gln | Asn | Arg | Tyr | Pro | Ile | Met | Pro | Asn | Asp | Ser | Ser | Thr | Tyr |
| 1 | | | 5 | | | | | | 10 | | | | | 15 | |
| Phe | Glu | Arg | Ile | Leu | Gln | Lys | Tyr | Leu | Met | Lys | Lys | Gln | Gly | Lys | Thr |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Phe | Leu | Phe | Leu | Phe | Leu | Ser | Phe | Leu | Phe | Ser | Thr | Ala | Phe | Ser |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gly | Leu | Phe | Ala | Ser | Gln | Thr | Ser | Ser | Leu | Arg | Thr | Ile | Gln | Glu | Asn |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Phe | Leu | Ala | Lys | Thr | Gly | Asp | Tyr | Thr | Val | Leu | Ser | Arg | Gly | Ser |
| 65 | | | | 70 | | | | | | 75 | | | | | 80 |
| Gln | Arg | Thr | Phe | Val | Leu | Val | Lys | Ser | Thr | Thr | Pro | Lys | Thr | Val | Trp |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Ile | Glu | Ile | Ile | His | Phe | Pro | Cys | Ile | Ala | His | Lys | Glu | Arg | Pro | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Glu | Gln | Ala | Ser | Trp | Lys | Thr | Val | Ile | His | Gln | Leu | Glu | Ser | Pro |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ser | Gln | Val | Phe | Val | Val | Ser | Leu | Ser | Ser | Glu | Gly | Ser | Gln | Phe | Phe |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ser | Leu | Asn | Thr | Arg | Thr | Lys | Ser | Leu | Glu | Pro | Val | Gly | Lys | Ser | Thr |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |

Thr Val Pro Ala Phe Leu Gln Ile Phe Asp Leu Pro Leu Ser Pro Ala
 165 170 175
 Pro Ala Asn Val Ile Lys Thr Lys Gly Lys Glu Asn Lys Pro Trp Ser
 180 185 190
 Pro Lys Val Ser Phe Glu Gly Ala Pro Leu Thr Ser Ile Ser Val Asn
 195 200 205
 Ala Trp Gln Gly Leu Trp Pro Lys Asp Arg Gly Pro Leu Ser Glu Thr
 210 215 220
 Gly Ile Leu Met Tyr Phe Thr Gln Pro Asp Ile Ser Val Phe Pro Leu
 225 230 235 240
 Trp Val Ser Ile Glu Thr Pro Lys Gly Thr Ser Ile Val Arg Ala Val
 245 250 255
 Asp Ile Gly His Gly Ala Thr Ser Pro Tyr Val Tyr Ser Leu Pro Asp
 260 265 270
 Ser Lys Thr Gln
 275

<210> 114
 <211> 117
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 114
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 Tyr Arg Gln Val Leu Phe Val Asp Ser Ser Thr Gly Tyr Lys Phe Val
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 Cys Gly Ser Thr Tyr Gln Ser Glu Lys Thr Glu Val Phe Glu Gly Lys
 35 40 45
 Glu Tyr Pro Val Cys Tyr Val Ser Val Ser Ser Ser Ser His Pro Phe
 50 55 60
 Phe Thr Gly Ser Lys Lys Phe Val Asp Ala Glu Gly Arg Val Asp Lys
 65 70 75 80
 Phe Leu Lys Arg Tyr Ser Asn Val Arg Gln Pro Ala Gln Gln Pro Gln
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 Pro Glu Glu Asp Ala Leu Pro Ala Ala Lys Gly Lys Lys Lys Val Val
 100 105 110
 Thr Lys Lys Lys Lys
 115

<210> 115
 <211> 359
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 115
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 Val Glu Ile Lys Ile Ser Asn Pro Glu Ile Phe Ser Asn Ser Lys Glu
 20 25 30
 Tyr Ser Ala Leu Ser Lys Glu His Ser Tyr Leu Leu Glu Leu Lys Asn
 35 40 45
 Ala Tyr Asp Lys Ile Leu Asn Leu Glu Lys Val Leu Ala Asp Asp Lys
 50 55 60
 Gln Ala Leu Ala Ile Glu Lys Asp Pro Glu Met Val Val Met Leu Glu
 65 70 75 80
 Glu Gly Ile Asn Glu Asn Lys Val Glu Leu Glu Lys Leu Asn Lys Ile
 85 90 95
 Leu Glu Ser Leu Leu Val Pro Pro Asp Pro Asp Asp Asp Leu Asn Val
 100 105 110

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Met | Glu | Leu | Arg | Ala | Gly | Thr | Gly | Gly | Glu | Glu | Ala | Ala | Leu | Phe |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Val | Gly | Asp | Cys | Val | Arg | Met | Tyr | His | Leu | Tyr | Ala | Ser | Ser | Lys | Gly |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Trp | Lys | Tyr | Glu | Val | Leu | Ser | Ala | Ser | Glu | Ser | Asp | Leu | Lys | Gly | Tyr |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Lys | Glu | Tyr | Val | Met | Gly | Ile | Ser | Gly | Thr | Gly | Val | Lys | Arg | Leu | Leu |
| | | | | 165 | | | | | 170 | | | | | | 175 |
| Gln | Tyr | Glu | Ala | Gly | Thr | His | Arg | Val | Gln | Arg | Val | Pro | Glu | Thr | Glu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Thr | Gln | Gly | Arg | Val | His | Thr | Ser | Ala | Ile | Thr | Ile | Ala | Val | Leu | Pro |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Glu | Pro | Ser | Glu | Glu | Asp | Thr | Glu | Leu | Leu | Ile | Asn | Glu | Lys | Asp | Leu |
| | 210 | | | | 215 | | | | | | 220 | | | | |
| Lys | Ile | Asp | Thr | Phe | Arg | Ala | Ser | Gly | Ala | Gly | Gly | Gln | His | Val | Asn |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Val | Thr | Asp | Ser | Ala | Val | Arg | Ile | Thr | His | Leu | Pro | Thr | Gly | Val | Val |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Val | Thr | Cys | Gln | Asp | Glu | Arg | Ser | Gln | His | Lys | Asn | Lys | Asp | Lys | Ala |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Met | Arg | Ile | Leu | Lys | Ala | Arg | Ile | Arg | Asp | Ala | Glu | Met | Gln | Lys | Arg |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| His | Asn | Glu | Ala | Ser | Ala | Met | Arg | Ser | Ala | Gln | Val | Gly | Ser | Gly | Asp |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Arg | Ser | Glu | Arg | Ile | Arg | Thr | Tyr | Asn | Phe | Ser | Gln | Asn | Arg | Val | Thr |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Asp | His | Arg | Ile | Gly | Leu | Thr | Leu | Tyr | Asn | Leu | Asp | Lys | Val | Met | Glu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Gly | Asp | Leu | Asp | Pro | Ile | Thr | Thr | Ala | Met | Val | Ser | His | Ala | Tyr | His |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Gln | Leu | Leu | Glu | His | Gly | Asn | | | | | | | | | |
| | | | 355 | | | | | | | | | | | | |

<210> 116

<211> 297

<212> PRT

<213> Chlamydia pneumoniae

<400> 116

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Met | Pro | Thr | Thr | Ser | Tyr | Ser | Asn | Met | Glu | Ile | Lys | Lys | Ala | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gln | Glu | Gly | Thr | Ala | Tyr | Leu | Asp | Tyr | Tyr | Gly | Val | Pro | Leu | Ser | Asp |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Cys | Glu | Ala | Leu | Tyr | Ile | Leu | Met | Asp | Leu | Leu | Glu | Val | Ser | Ser | Arg |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ala | Lys | Leu | Phe | Asp | Leu | Val | Gly | Ile | Ser | Glu | Thr | Met | Leu | Met | Glu |
| | | 50 | | | | 55 | | | | | 60 | | | | |
| Tyr | Arg | Lys | Arg | Leu | Ala | Leu | Arg | Gly | Gln | Arg | Cys | Pro | Thr | Ala | Tyr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Asn | Gly | Ala | Val | Ser | Phe | Leu | Gly | Leu | Arg | Leu | Arg | Val | Asp | Ser |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Arg | Val | Leu | Ile | Pro | Arg | Thr | Glu | Thr | Glu | Leu | Leu | Ala | Glu | Tyr | Ile |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ile | Asn | Tyr | Leu | Leu | Ser | His | Ser | Glu | Ile | Gln | Thr | Phe | Tyr | Asp | Ile |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Cys | Cys | Gly | Ser | Gly | Cys | Leu | Gly | Leu | Ala | Ile | Lys | Lys | Ser | Cys | Pro |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| His | Val | Glu | Val | Val | Leu | Ser | Asp | Val | Cys | Pro | Gln | Ala | Val | Ala | Val |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | Asn | Glu | Asn | Ala | Lys | Ser | Asn | Gly | Leu | Asp | Val | Lys | Ile | Leu | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Asp | Leu | Ser | Ala | Pro | Tyr | Thr | Arg | Pro | Ala | Asp | Ala | Phe | Val | Cys |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Asn | Pro | Pro | Tyr | Leu | Ser | Phe | Asn | Glu | Ile | Ile | His | Ile | Asp | Pro | Glu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Val | Arg | Cys | Tyr | Glu | Pro | Trp | Lys | Ala | Leu | Val | Gly | Gly | Ser | Thr | Gly |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Glu | Phe | Tyr | Gln | Arg | Ile | Ala | Gln | Glu | Leu | Pro | Lys | Ile | Val | Thr |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ser | Thr | Gly | Val | Gly | Trp | Leu | Glu | Ile | Gly | Ser | Ser | Gln | Gly | Glu | Ser |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Ile | Lys | Asn | Ile | Phe | Ser | Lys | His | Gly | Ile | Tyr | Gly | Arg | Leu | His | Gln |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Asp | Leu | Ser | Gly | Arg | Asp | Arg | Ile | Phe | Phe | Leu | Glu | Met | Asp | Gly | Arg |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Asp | Pro | Val | Ser | Ser | Gly | Ala | Tyr | Ser | | | | | | | |
| | 290 | | | | | 295 | | | | | | | | | |

<210> 117

<211> 448

<212> PRT

<213> Chlamydia pneumoniae

<400> 117

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ile | Asn | Ser | Leu | Ser | Gln | Lys | Leu | Ser | Ser | Ile | Phe | Ser | Phe | Leu |
| 1 | | | | 5 | | | | 10 | | | | | | 15 | |
| Val | Ser | Ser | Arg | Arg | Ile | Asn | Glu | Glu | Asn | Ile | Ser | Glu | Ser | Ile | Arg |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Val | Arg | Leu | Ala | Leu | Leu | Asp | Ala | Asp | Val | Asn | Tyr | His | Val | Val |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Lys | Asp | Phe | Ile | Ser | Lys | Val | Lys | Glu | Lys | Ile | Leu | Gly | Glu | Glu | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Trp | Lys | His | Val | Ser | Pro | Gly | Gln | Gln | Phe | Ile | Arg | Cys | Leu | His | Glu |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 |
| Glu | Leu | Val | Ala | Phe | Leu | Ser | Asp | Gly | Arg | Glu | Glu | Phe | Thr | Ile | Gln |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Lys | Thr | Pro | Ser | Ile | Ile | Leu | Leu | Cys | Gly | Leu | Gln | Gly | Ala | Gly | Lys |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Thr | Thr | Thr | Ala | Ala | Lys | Leu | Ala | Asp | Tyr | Val | Ile | Lys | Asn | Lys | Lys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ala | Lys | Lys | Val | Leu | Val | Val | Pro | Cys | Asp | Leu | Lys | Arg | Phe | Ala | Ala |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Val | Asp | Gln | Leu | Lys | Ile | Leu | Val | Ala | Gln | Thr | Lys | Ala | Glu | Phe | Tyr |
| 145 | | | | | 150 | | | | 155 | | | | | | 160 |
| Gln | Ser | Gln | Glu | Asn | Lys | Pro | Ile | Asn | Val | Val | Val | Lys | Ala | Leu | Ala |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Tyr | Ala | Lys | Glu | Asn | Gly | His | Asp | Phe | Val | Ile | Leu | Asp | Thr | Ala | Gly |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Arg | Leu | Asn | Ile | Asp | Asn | Glu | Leu | Met | Glu | Glu | Leu | Thr | Ala | Ile | Gln |
| | 195 | | | | | 200 | | | | | | 205 | | | |
| Lys | Val | Ser | Gln | Ala | Asn | Glu | Arg | Leu | Phe | Val | Met | Asn | Val | Ala | Met |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gly | Gln | Asp | Val | Leu | Ala | Thr | Val | Gln | Ala | Phe | Asp | Gln | Ser | Leu | Asp |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Thr | Gly | Val | Ile | Leu | Ser | Met | Thr | Asp | Gly | Asp | Ala | Arg | Ala | Gly |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Ala | Val | Phe | Ser | Ile | Lys | His | Val | Leu | Gly | Lys | Pro | Ile | Lys | Phe | Glu |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Gly | Cys | Gly | Glu | Arg | Ile | Gln | Asp | Leu | Arg | Ser | Phe | Asp | Pro | Gln | Ser |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Met | Ala | Glu | Arg | Ile | Leu | Gly | Met | Gly | Asp | Thr | Ile | Asn | Phe | Val | Lys |
| | 290 | | | | | 295 | | | | | 300 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Met | Arg | Glu | Tyr | Ile | Ser | Glu | Glu | Glu | Asp | Ala | Glu | Leu | Gly | Lys |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Lys | Leu | Val | Thr | Ala | Phe | Thr | Tyr | Glu | Asp | Tyr | Tyr | Lys | Gln | Met | |
| | | | | 325 | | | | 330 | | | | | 335 | | |
| Lys | Ala | Phe | Arg | Arg | Met | Gly | Pro | Leu | Arg | Lys | Leu | Leu | Gly | Met | Met |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Pro | Gly | Phe | Asn | Asn | Ala | Lys | Pro | Ser | Gln | Lys | Glu | Ile | Glu | Asp | Ser |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Glu | Gln | Gln | Met | Lys | Arg | Thr | Glu | Ala | Ile | Ile | Leu | Ser | Met | Thr | Pro |
| | 370 | | | | | 375 | | | | | | 380 | | | |
| Glu | Glu | Arg | Lys | Glu | Leu | Val | Glu | Leu | Asp | Met | Ser | Arg | Met | Lys | Arg |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ile | Ala | Ser | Gly | Cys | Gly | Leu | Thr | Leu | Gly | Asp | Val | Asn | Gln | Phe | Arg |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Lys | Gln | Met | Ser | Gln | Ser | Lys | Lys | Phe | Phe | Lys | Gly | Met | Ser | Lys | Gly |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Lys | Met | Glu | Gln | Val | Arg | Lys | Lys | Met | Ser | Gly | Gly | Asn | Gln | Trp | Arg |
| | | 435 | | | | | 440 | | | | | | 445 | | |

<210> 118
 <211> 127
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 118 | | | | | | | | | | | | | | | |
| Glu | Lys | Asn | Val | Arg | Arg | Lys | Ser | Val | Ala | Leu | Lys | Ile | Arg | Leu | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gln | Gln | Gly | Arg | Arg | Asn | His | Val | Val | Tyr | Arg | Leu | Val | Leu | Ala | Asp |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Val | Glu | Ser | Pro | Arg | Asp | Gly | Lys | Tyr | Ile | Glu | Leu | Leu | Gly | Trp | Tyr |
| | | 35 | | | | | 40 | | | | | | 45 | | |
| Asp | Pro | His | Ser | Ser | Ile | Asn | Tyr | Gln | Leu | Lys | Ser | Glu | Arg | Ile | Phe |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Tyr | Trp | Leu | Glu | Arg | Gly | Ala | Gln | Leu | Ser | Ser | Lys | Ala | Glu | Ala | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Val | Lys | Gln | Gly | Ala | Pro | Gly | Val | Tyr | Ser | Ala | Leu | Leu | Ser | Lys | Gln |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Glu | Ala | Arg | Lys | Leu | Val | Val | Arg | Lys | Lys | Arg | Arg | Ala | Tyr | Arg | Gln |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Arg | Arg | Ser | Thr | Gln | Arg | Glu | Glu | Ala | Ala | Lys | Asp | Ala | Thr | Lys | |
| | | 115 | | | | | 120 | | | | | | 125 | | |

<210> 119
 <211> 363
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 119 | | | | | | | | | | | | | | | |
| Thr | Gly | Met | Lys | Ile | Asp | Ile | Leu | Ser | Leu | Phe | Pro | Gly | Tyr | Phe | Asp |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Pro | Leu | Gln | Thr | Ser | Ile | Leu | Gly | Arg | Ala | Ile | Lys | Gln | Arg | Leu |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Leu | Asp | Val | Gln | Leu | Thr | Asn | Leu | Arg | Asp | Phe | Gly | Leu | Gly | Lys | Trp |
| | | 35 | | | | | 40 | | | | | | 45 | | |
| Lys | Gln | Val | Asp | Asp | Thr | Pro | Phe | Ser | Gly | Gly | Gly | Met | Leu | Leu | Met |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ala | Glu | Pro | Val | Thr | Ser | Ala | Ile | Arg | Ser | Val | Arg | Lys | Glu | Asn | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Lys | Val | Ile | Tyr | Leu | Ser | Pro | Gln | Gly | Ala | Leu | Leu | Thr | Ala | Glu | Lys |
| | | | | 85 | | | | | 90 | | | | | 95 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Arg | Glu | Leu | Ala | Ala | Ala | Ser | His | Leu | Ile | Leu | Leu | Cys | Gly | His |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Tyr | Glu | Gly | Ile | Asp | Glu | Arg | Ala | Ile | Glu | Ser | Glu | Val | Asp | Glu | Glu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ile | Ser | Ile | Gly | Asp | Tyr | Val | Leu | Thr | Asn | Gly | Gly | Ile | Ala | Ala | Leu |
| | | 130 | | | | 135 | | | | | 140 | | | | |
| Val | Leu | Ile | Asp | Ala | Val | Ser | Arg | Phe | Ile | Pro | Gly | Val | Leu | Gly | Asn |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gln | Glu | Ser | Ala | Glu | Arg | Asp | Ser | Leu | Glu | Asn | Gly | Leu | Leu | Glu | Gly |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Pro | Gln | Tyr | Thr | Arg | Pro | Arg | Glu | Phe | Glu | Gly | Lys | Glu | Val | Pro | Glu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Val | Leu | Leu | Gln | Gly | Asp | His | Lys | Ala | Ile | Ser | Gln | Trp | Arg | Leu | Glu |
| | | 195 | | | | 200 | | | | | | 205 | | | |
| Gln | Ser | Glu | Arg | Arg | Thr | Tyr | Glu | Arg | Arg | Pro | Asp | Leu | Tyr | Leu | Asn |
| | | 210 | | | | 215 | | | | | 220 | | | | |
| Tyr | Leu | Tyr | Lys | Arg | Ser | Ile | Asp | His | Lys | Phe | Asp | Glu | Glu | Thr | Thr |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Thr | Asn | Arg | Asp | His | Phe | Lys | Cys | Asp | Lys | Ile | Ser | Val | Val | Leu | Glu |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Val | Asn | Lys | Leu | Lys | Arg | Ala | Lys | Asn | Phe | Tyr | Cys | Lys | Val | Phe | Gly |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Asp | Ala | Met | Ser | Cys | Glu | Asn | Lys | Phe | Cys | Leu | Pro | His | Glu | Gly |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Lys | Thr | Ile | Phe | Trp | Leu | Arg | Glu | Val | Gln | Ala | Glu | Lys | Lys | Asn | Ile |
| | | 290 | | | | 295 | | | | | 300 | | | | |
| Val | Thr | Leu | Ser | Leu | Ser | Leu | Asp | Cys | Ala | Cys | Glu | Glu | Asp | Phe | Cys |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Tyr | Leu | Leu | Arg | Arg | Trp | Glu | Leu | Phe | Gly | Gly | Lys | Leu | Leu | Glu | Lys |
| | | | 325 | | | | | | 330 | | | | | 335 | |
| Gln | Ala | Asp | Glu | His | Ala | Val | Trp | Ala | Leu | Ala | Gln | Asp | Leu | Asp | Gly |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| His | Ala | Trp | Ile | Phe | Ser | Trp | His | Arg | Met | Lys | | | | | |
| | | 355 | | | | | 360 | | | | | | | | |

<210> 120

<211> 130

<212> PRT

<213> Chlamydia pneumoniae

<400> 120

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Lys | Glu | Asn | Phe | Arg | Trp | Tyr | Ile | Met | Val | Asn | Leu | Leu | Lys | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Glu | Gln | Glu | Gln | Cys | Arg | Asn | Asp | Leu | Pro | Glu | Phe | His | Val | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Asp | Thr | Ile | Arg | Leu | Ala | Thr | Lys | Ile | Ser | Glu | Gly | Gly | Lys | Glu | Arg |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Val | Gln | Val | Phe | Gln | Gly | Thr | Val | Met | Ala | Arg | Arg | Gly | Gly | Gly | Ser |
| | | 50 | | | | 55 | | | | | 60 | | | | |
| Gly | Glu | Thr | Val | Ser | Leu | His | Arg | Val | Ala | Tyr | Gly | Glu | Gly | Met | Glu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Lys | Ser | Phe | Leu | Leu | Asn | Ser | Pro | Arg | Ile | Val | Ser | Ile | Glu | Ile | Val |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Lys | Arg | Gly | Lys | Val | Ala | Arg | Ala | Arg | Leu | Tyr | Tyr | Leu | Arg | Gly | Lys |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Thr | Gly | Lys | Ala | Ala | Lys | Val | Lys | Glu | Phe | Val | Gly | Pro | Arg | Ser | Ser |
| | | 115 | | | | | 120 | | | | | | 125 | | |
| Lys | Lys | | | | | | | | | | | | | | |
| | | 130 | | | | | | | | | | | | | |

<210> 121
 <211> 215
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 121
 Leu Met Asn Thr Ser Ile Ser Glu Ile Gln Arg Phe Leu Ser Met Ile
 1 5 10 15
 Ala Phe Glu Lys Glu Leu Val Ser Glu Asp Phe Ser Val Val Ala Gly
 20 25 30
 Ile Asp Glu Ala Gly Arg Gly Pro Leu Ala Gly Pro Val Val Ala Ser
 35 40 45
 Ala Cys Ile Leu Pro Lys Gly Lys Val Phe Pro Gly Val Asn Asp Ser
 50 55 60
 Lys Lys Leu Ser Pro Lys Gln Arg Ala Gln Val Arg Asp Ala Leu Met
 65 70 75 80
 Gln Asp Pro Glu Val Cys Phe Gly Ile Gly Val Ile Ser Val Glu Arg
 85 90 95
 Ile Asp Gln Val Asn Ile Leu Glu Ala Thr Lys Glu Ala Met Leu Gln
 100 105 110
 Ala Ile Ser Ser Leu Pro Ile Ser Pro Asp Ile Leu Leu Val Asp Gly
 115 120 125
 Leu Tyr Leu Pro His Asp Ile Pro Cys Lys Lys Ile Ile Gln Gly Asp
 130 135 140
 Ala Lys Ser Ala Ser Ile Ala Ala Ala Ser Ile Leu Ala Lys Glu His
 145 150 155 160
 Arg Asp Asp Leu Met Leu Gln Leu His Arg Leu Tyr Pro Glu Tyr Gly
 165 170 175
 Phe Asp Arg His Lys Gly Tyr Gly Thr Ser Leu His Val Glu Ala Ile
 180 185 190
 Arg Arg Tyr Gly Pro Ser Pro Cys His Arg Lys Ser Phe Ser Pro Ile
 195 200 205
 Lys Gln Met Cys Ala Ile Val
 210 215

<210> 122
 <211> 218
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 122
 Glu Glu Leu Phe Ser Asn Lys Ala Asn Val Cys Tyr Cys Met Asn Lys
 1 5 10 15
 Ile Leu Val Asp Ser Pro Phe Ser Pro Asp His Gln Lys Cys Cys Pro
 20 25 30
 Lys Leu Phe Thr Ile Ser Ala Pro Ala Gly Val Gly Lys Thr Thr Leu
 35 40 45
 Val Arg Met Leu Glu Gln Glu Phe Ser Ser Ala Phe Ala Glu Thr Ile
 50 55 60
 Ser Val Thr Thr Arg Lys Pro Arg Glu Gly Glu Val Pro Gly Lys Asp
 65 70 75 80
 Tyr His Phe Val Ser His Glu Glu Phe Gln Arg Leu Leu Asp Arg Gln
 85 90 95
 Ala Leu Leu Glu Trp Val Phe Leu Phe Gly Glu Cys Tyr Gly Thr Ser
 100 105 110
 Met Leu Glu Ile Glu Arg Ile Trp Ser Leu Gly Lys His Ala Val Ala
 115 120 125
 Val Ile Asp Ile Gln Gly Ala Leu Phe Ile Arg Ser Arg Met Pro Ser
 130 135 140
 Val Ser Ile Phe Ile Ala Pro Pro Ser Gln Glu Glu Leu Glu Arg Arg
 145 150 155 160

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Ala | Ser | Arg | Gly | Ser | Glu | Glu | Gly | Ser | Gln | Arg | Lys | Glu | Arg | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Glu | His | Ser | Leu | Ile | Glu | Leu | Ala | Ala | Ala | Asn | Gln | Phe | Asp | Tyr | Val |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ile | Ile | Asn | Asp | Asp | Leu | Asn | Gln | Ala | Tyr | Arg | Val | Leu | Lys | Ser | Ile |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Phe | Ile | Ala | Glu | Glu | His | Arg | Asn | Ile | Leu | | | | | | |
| | 210 | | | | | 215 | | | | | | | | | |

<210> 123
 <211> 100
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 123 | | | | | | | | | | | | | | | |
| Glu | His | Ile | Met | Ile | Lys | Lys | Asp | Arg | Phe | Thr | Asn | Glu | Lys | Leu | Asn |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Lys | Leu | Phe | Asp | Ser | Pro | Phe | Ser | Leu | Val | Asn | Tyr | Ala | Ile | Lys | Gln |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Lys | Ile | Lys | Ile | Ala | Lys | Gly | Asp | Val | Arg | Ser | Ser | Asn | Val | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ile | Glu | Thr | Leu | Val | Leu | Leu | Asp | Arg | Glu | Gly | Ile | Gln | Pro | Glu | Phe |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Thr | Glu | Glu | Ile | Val | Val | Thr | Ala | Ser | Pro | Thr | Val | Glu | Arg | Lys | Arg |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ser | Glu | His | Thr | Asn | Ser | Arg | Lys | Lys | Asp | Pro | Ser | Ala | Tyr | Thr | Trp |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ser | Asp | Val | Lys | | | | | | | | | | | | |
| | | | 100 | | | | | | | | | | | | |

<210> 124
 <211> 554
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 124 | | | | | | | | | | | | | | | |
| Cys | Lys | Val | Met | Pro | Gln | Lys | Val | Leu | Ile | Thr | Ser | Ala | Leu | Pro | Tyr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ala | Asn | Gly | Pro | Leu | His | Phe | Gly | His | Ile | Ala | Gly | Val | Tyr | Leu | Pro |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Asp | Val | Tyr | Ala | Arg | Phe | Arg | Arg | Leu | Leu | Gly | Asp | Asp | Val | Leu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Tyr | Ile | Cys | Gly | Ser | Asp | Glu | Phe | Gly | Ile | Ala | Ile | Thr | Leu | Asn | Ala |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Asp | Arg | Glu | Gly | Leu | Gly | Tyr | Gln | Glu | Tyr | Val | Asp | Met | Tyr | His | Lys |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 |
| Leu | His | Lys | Asp | Thr | Phe | Glu | Lys | Leu | Gly | Phe | Ala | Leu | Asp | Phe | Phe |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ser | Arg | Thr | Thr | Asn | Pro | Phe | His | Ala | Glu | Leu | Val | Gln | Asp | Phe | Tyr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Gln | Leu | Lys | Ala | Ser | Gly | Leu | Ile | Glu | Asn | Arg | Ile | Ser | Glu | Gln |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Tyr | Ser | Glu | Gln | Glu | Gln | Arg | Phe | Leu | Ala | Asp | Arg | Tyr | Val | Glu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gly | Thr | Cys | Pro | Arg | Cys | Gly | Phe | Asp | His | Ala | Arg | Gly | Asp | Glu | Cys |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gln | Ser | Cys | Gly | Ala | Asp | Tyr | Glu | Ala | Ile | Asp | Leu | Ile | Gly | Pro | Lys |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Ser | Lys | Ile | Ser | Gly | Val | Glu | Leu | Val | Lys | Lys | Glu | Thr | Glu | His | Ser |
| | | | 180 | | | | | 185 | | | | | | 190 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Phe | Leu | Leu | Asp | Arg | Met | Lys | Asp | Ala | Leu | Leu | Ser | Phe | Ile | Gln |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Gly | Cys | Tyr | Leu | Pro | Asp | His | Val | Arg | Lys | Phe | Val | Val | Asp | Tyr | Ile |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Glu | His | Val | Arg | Ser | Arg | Ala | Ile | Thr | Arg | Asp | Leu | Ser | Trp | Gly | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Pro | Val | Pro | Asp | Phe | Pro | Gly | Lys | Val | Phe | Tyr | Val | Trp | Phe | Asp | Ala |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Pro | Ile | Gly | Tyr | Ile | Ser | Gly | Thr | Met | Glu | Trp | Ala | Ala | Ser | Gln | Gly |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Asn | Pro | Asp | Glu | Trp | Lys | Arg | Phe | Trp | Leu | Glu | Asp | Gly | Val | Glu | Tyr |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Val | Gln | Phe | Ile | Gly | Lys | Asp | Asn | Leu | Pro | Phe | His | Ser | Val | Val | Phe |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Pro | Ala | Met | Glu | Leu | Gly | Gln | Lys | Leu | Asp | Tyr | Lys | Lys | Val | Asp | Ala |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Leu | Val | Val | Ser | Glu | Phe | Tyr | Leu | Leu | Glu | Gly | Arg | Gln | Phe | Ser | Lys |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ser | Glu | Gly | Asn | Tyr | Val | Asp | Met | Asp | Lys | Phe | Leu | Ser | Ser | Tyr | Ser |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Leu | Asp | Lys | Leu | Arg | Tyr | Val | Leu | Ala | Ala | Thr | Ala | Pro | Glu | Thr | Ser |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Asp | Ser | Glu | Phe | Thr | Phe | Leu | Asp | Phe | Lys | Thr | Arg | Cys | Asn | Ser | Glu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Leu | Val | Gly | Lys | Phe | Gly | Asn | Phe | Ile | Asn | Arg | Val | Leu | Ala | Phe | Ala |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Glu | Lys | Asn | His | Tyr | Asp | Lys | Leu | Ser | Tyr | His | Ser | Val | Val | Leu | Glu |
| | | | 405 | | | | | | 410 | | | | | 415 | |
| Asp | Ser | Asp | Arg | Ala | Phe | Leu | Glu | Glu | Ala | Arg | Gln | Leu | Val | Arg | Asp |
| | | 420 | | | | | | 425 | | | | 430 | | | |
| Ala | Glu | Lys | Cys | Tyr | Arg | Glu | Tyr | Ser | Leu | Arg | Lys | Ala | Thr | Ser | Val |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Ile | Met | Ser | Leu | Ala | Ala | Leu | Gly | Asn | Val | Tyr | Phe | Asn | Gln | Gln | Ala |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Pro | Trp | Lys | Leu | Leu | Lys | Glu | Gly | Thr | Arg | Glu | Arg | Val | Glu | Ala | Ile |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Leu | Phe | Cys | Ala | Cys | Tyr | Cys | Gln | Lys | Leu | Leu | Ala | Leu | Ile | Ser | Tyr |
| | | | 485 | | | | | | 490 | | | | 495 | | |
| Pro | Ile | Ile | Pro | Glu | Ser | Ala | Val | Ala | Ile | Trp | Glu | Met | Ile | Ser | Pro |
| | | | 500 | | | | | 505 | | | | 510 | | | |
| Lys | Ser | Leu | Glu | Asn | Cys | Asn | Leu | Asp | Thr | Met | Tyr | Ala | Arg | Asp | Leu |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Trp | Lys | Glu | Glu | Ile | Leu | Asp | Val | Ile | Asn | Glu | Glu | Phe | His | Leu | Lys |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Ser | Pro | Arg | Leu | Leu | Phe | Thr | Thr | Val | Glu | | | | | | |
| 545 | | | | | 550 | | | | | | | | | | |

<210> 125
 <211> 734
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 125
 Asn Ser Met Glu Lys Ile Cys Gly Tyr Leu Glu Gln Ile Leu Val Glu
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 Thr Thr Pro Ile Leu Ile Lys Gly Lys Leu Pro Gln Pro Leu Glu Leu
 35 40 45
 Gly Ser Pro Ile Gln Ile Tyr Gly Val Trp Ser His Ser Pro Ser Asn
 50 55 60

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Lys | Tyr | Phe | Gln | Ile | His | Ser | Tyr | Asp | Ser | Pro | Leu | Leu | Tyr | Glu | 65 | 70 | 75 | 80 |
| Tyr | Arg | Gly | Val | Phe | His | Tyr | Leu | Thr | Ser | Lys | Leu | Ile | Lys | Gly | Ile | 85 | 90 | 95 | |
| Gly | Pro | Lys | Ile | Ala | Glu | Lys | Ile | Ile | Glu | Lys | Phe | Gln | Glu | Lys | Thr | 100 | 105 | 110 | |
| Cys | Tyr | Val | Leu | Asp | Ile | Thr | Pro | Glu | Arg | Leu | Ser | Glu | Val | Ser | Gly | 115 | 120 | 125 | |
| Ile | Ser | Glu | Thr | Arg | Cys | Val | Ser | Ile | Cys | Lys | Gln | Leu | Cys | Glu | Gln | 130 | 135 | 140 | |
| Lys | Ile | Leu | Arg | Lys | Thr | Leu | Leu | Phe | Leu | Gln | Glu | Tyr | Asn | Ile | Pro | 145 | 150 | 155 | 160 |
| Ile | His | Tyr | Gly | Val | Arg | Ile | Phe | Lys | Lys | Tyr | Gln | Glu | Lys | Ser | Ile | 165 | 170 | 175 | |
| Glu | Lys | Ile | Cys | Glu | Asp | Pro | Phe | Leu | Leu | Ala | Arg | Glu | Met | Glu | Gly | 180 | 185 | 190 | |
| Ile | Gly | Phe | Lys | Thr | Ala | Asp | Phe | Ile | Ala | Met | Lys | Leu | Gly | Val | Pro | 195 | 200 | 205 | |
| Arg | Asn | Ser | Glu | Ser | Arg | Leu | Cys | Ala | Gly | Ile | Gln | His | Ser | Leu | Glu | 210 | 215 | 220 | |
| Glu | Leu | Gln | Glu | Glu | Gly | His | Thr | Cys | Tyr | Pro | Ile | Glu | Leu | Leu | Ile | 225 | 230 | 235 | 240 |
| Asp | Val | Val | Ala | Lys | Leu | Leu | Asn | Gln | Asp | Val | Phe | Asp | Thr | Pro | Ile | 245 | 250 | 255 | |
| Thr | Leu | Glu | Glu | Ile | Asp | Thr | Gln | Ile | Leu | Asn | Met | Gln | Lys | Arg | Lys | 260 | 265 | 270 | |
| Leu | Leu | His | Ile | Gln | Asp | Ile | Ser | Gly | Thr | Leu | His | Val | Trp | Thr | Arg | 275 | 280 | 285 | |
| Tyr | Leu | His | Leu | Ala | Glu | Lys | Thr | Ile | Val | Ser | Asp | Leu | Lys | Arg | Ile | 290 | 295 | 300 | |
| Leu | Phe | Ser | Ser | Arg | Arg | Ile | Arg | Ser | Ile | Asp | Gly | Glu | Lys | Ala | Ile | 305 | 310 | 315 | 320 |
| Ala | Trp | Val | Glu | Glu | Asn | Leu | Ser | Ile | Asp | Leu | Ala | Glu | Gln | Gln | Arg | 325 | 330 | 335 | |
| Glu | Ala | Ile | Lys | Ala | Cys | Phe | Ser | Glu | Lys | Leu | Leu | Ile | Ile | Thr | Gly | 340 | 345 | 350 | |
| Gly | Pro | Gly | Thr | Gly | Lys | Ser | Thr | Ile | Thr | Gln | Ala | Ile | Leu | Lys | Ile | 355 | 360 | 365 | |
| Phe | Glu | Gln | Val | Thr | His | Lys | Ile | Ile | Leu | Ala | Ala | Pro | Thr | Gly | Lys | 370 | 375 | 380 | |
| Ala | Ala | Lys | Arg | Met | Thr | Glu | Ile | Thr | Gln | Lys | His | Ser | Val | Thr | Ile | 385 | 390 | 395 | 400 |
| His | Ala | Leu | Leu | Gln | Tyr | Asp | Phe | Lys | Thr | Lys | Ser | Phe | Arg | Lys | Asn | 405 | 410 | 415 | |
| His | Asp | Asn | Pro | Ile | Asp | Cys | Asp | Leu | Ile | Ile | Val | Asp | Glu | Ser | Gly | 420 | 425 | 430 | |
| Met | Met | Asp | Thr | His | Leu | Leu | His | Phe | Leu | Lys | Ala | Leu | Pro | Asp | | 435 | 440 | 445 | |
| Tyr | Thr | Thr | Leu | Val | Phe | Ile | Gly | Asp | Ile | His | Gln | Leu | Pro | Ser | Val | 450 | 455 | 460 | |
| Gly | Pro | Gly | Asn | Ile | Leu | Lys | Asp | Leu | Ile | Thr | Ser | Asn | Lys | Met | Thr | 465 | 470 | 475 | 480 |
| Val | Ile | Arg | Leu | Asn | Lys | Ile | Phe | Arg | Gln | Val | His | Asp | Ser | Gly | Ile | 485 | 490 | 495 | |
| Val | Thr | Asn | Ala | His | Arg | Val | Asn | Glu | Gly | Glu | Leu | Pro | Ile | Leu | Tyr | 500 | 505 | 510 | |
| Ser | Glu | Thr | Gly | Arg | Arg | Asp | Phe | Leu | Phe | Phe | Gln | Lys | Asp | Asp | Gln | 515 | 520 | 525 | |
| Glu | Glu | Ala | Leu | Asn | His | Ile | Ile | His | Leu | Val | Thr | Lys | Phe | Val | Pro | 530 | 535 | 540 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Lys | Tyr | His | Ile | Tyr | Pro | Gln | Asp | Ile | Gln | Val | Leu | Ala | Pro | Met |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Lys | Lys | Gly | Thr | Leu | Gly | Ile | Tyr | Asn | Leu | Asn | Lys | Ala | Leu | Lys | His |
| | | | | 565 | | | | | 570 | | | | | | 575 |
| Ala | Leu | Asn | Pro | Lys | Lys | Ala | Asn | Leu | His | Gly | Arg | Phe | Gln | Ser | Tyr |
| | | | 580 | | | | | 585 | | | | | | | 590 |
| Ala | Val | Gly | Asp | Lys | Val | Met | Gln | Ile | Arg | Asn | Asn | Tyr | Asn | Lys | Glu |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Val | Phe | Asn | Gly | Asp | Ile | Gly | Tyr | Val | Ser | Thr | Ile | Asn | Phe | Glu | Asp |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Lys | Ala | Val | Val | Val | Arg | Met | Glu | Gly | Lys | His | Val | Gly | Tyr | Ser | Phe |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Ser | Glu | Leu | Asp | Asp | Leu | Val | Leu | Ala | Tyr | Ala | Thr | Ser | Val | His | Lys |
| | | | 645 | | | | | | 650 | | | | | | 655 |
| Tyr | Gln | Gly | Ser | Glu | Ser | Pro | Cys | Ile | Ile | Ile | Pro | Ile | His | Thr | Ser |
| | | | 660 | | | | | 665 | | | | | | | 670 |
| His | Phe | Met | Met | Leu | Tyr | Arg | Asn | Leu | Leu | Tyr | Thr | Ala | Ile | Thr | Arg |
| | 675 | | | | | | 680 | | | | | | 685 | | |
| Gly | Lys | Lys | Leu | Val | Ile | Leu | Val | Gly | Thr | Lys | Lys | Ala | Ile | Ala | Ile |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Ala | Thr | Arg | Asn | Asn | Arg | Val | Gln | His | Arg | Cys | Thr | Gly | Leu | Ala | Glu |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Val | Leu | Lys | Glu | Leu | Asp | Thr | Lys | Lys | Asn | Tyr | Ala | Asp | Leu | | |
| | | | | 725 | | | | | 730 | | | | | | |

<210> 126

<211> 498

<212> PRT

<213> Chlamydia pneumoniae

<400> 126

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Arg | Ser | Lys | Gln | Arg | Thr | Val | Ala | Ile | Thr | Leu | Leu | Val | Leu | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Leu | Leu | Ile | Ala | Ser | Gly | Ile | Ile | Phe | Leu | Ala | Val | Ala | Ile | Pro |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Gly | Leu | Ser | Ser | Ala | Val | Ala | Leu | Gly | Leu | Gly | Cys | Gly | Met | Thr | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Gly | Thr | Val | Leu | Leu | Ile | Thr | Gly | Leu | Val | Leu | Leu | Ile | Arg | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Glu | Lys | Leu | Ala | Leu | Glu | Gln | Val | Glu | Ile | Lys | Gln | Ala | Arg | Thr | Arg |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Val | Asn | Asn | Glu | Leu | Asp | Gln | Leu | Ser | Gln | Tyr | Val | Phe | Tyr | Thr | Glu |
| | | | 85 | | | | | | 90 | | | | | | 95 |
| Asn | Val | Leu | Asp | Asn | Leu | Lys | Arg | Trp | Ser | Tyr | Arg | Asp | Leu | Gly | Phe |
| | | | 100 | | | | | 105 | | | | | | 110 | |
| Val | Arg | Gln | Ala | Gln | Glu | Glu | Val | Thr | Asn | Leu | Glu | Gln | Asp | Ile | Glu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Glu | Ile | Phe | Leu | Thr | Leu | Arg | Asp | Ile | Arg | Asn | Ala | Leu | Asp | Asn | Glu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Glu | Phe | Phe | Met | Thr | His | Ala | Lys | Gln | Cys | Leu | Ala | Gln | Val | Gly | Glu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Leu | Phe | Gln | Asp | Ala | Ser | Ile | Asp | Glu | Phe | Ile | Asn | Leu | Ala | His |
| | | | 165 | | | | | | 170 | | | | | | 175 |
| Leu | Ser | Glu | Ile | Arg | Gln | His | Leu | Asp | Ile | Asn | Asp | Pro | Arg | Trp | Ser |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Met | Ile | Thr | Lys | Lys | Val | Lys | Gly | Thr | Val | Val | Arg | Phe | Ile | Tyr | Val |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ser | Thr | Met | Tyr | Lys | Gln | Ile | Lys | Ser | Asn | Phe | Glu | Lys | Ser | Asp | Phe |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gly | Gln | Leu | Arg | Lys | Met | Leu | Leu | Asn | Asn | Tyr | Lys | Thr | Ile | Glu | Glu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Val | Leu | Tyr | Gln | Ser | Phe | Gln | Lys | Gly | Tyr | Asn | Arg | Ala | Ala | Leu | Leu | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |
| Ser | Glu | Lys | Thr | Arg | Ile | Ile | His | Thr | Ser | Ser | Leu | Leu | His | Trp | Glu | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | |
| Lys | Asp | Glu | Asp | Lys | His | Leu | Asn | Ile | Lys | Asn | Glu | Cys | Ala | Ser | Arg | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | |
| Leu | Glu | Asn | Phe | Lys | Lys | Phe | Arg | Thr | Leu | Phe | Leu | Gly | Leu | Ser | Glu | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| Glu | Asp | Val | Ile | Asp | Phe | Thr | Gly | Ala | Ser | Gly | Trp | Asp | Cys | Ser | Lys | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | |
| Leu | Pro | Arg | Lys | Glu | Val | Pro | Leu | Asp | Gly | Gly | Lys | Lys | Lys | Leu | Arg | | |
| | | | 325 | | | | | 330 | | | | | | 335 | | | |
| Phe | Lys | Arg | Thr | Phe | Ala | Asp | Glu | Gln | Val | Gly | Asp | Trp | Asp | Arg | Thr | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | |
| Thr | Ser | Leu | Glu | His | Met | Thr | Pro | Gln | Glu | Glu | Asp | Pro | Leu | Asp | Arg | | |
| | | 355 | | | | | 360 | | | | | 365 | | | | | |
| Leu | Met | Asp | Gln | Val | Glu | Gln | Glu | Ala | Thr | Ser | Val | Leu | Lys | Asp | Gln | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | |
| Asp | Arg | Tyr | Trp | Lys | Glu | Ile | Glu | Thr | Ser | Glu | Ala | Lys | Phe | Arg | Ser | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | |
| Leu | Pro | Arg | Glu | Asp | Phe | Glu | Lys | Gln | Ser | Gln | Ile | Asp | Ser | Tyr | | | |
| | | | 405 | | | | | 410 | | | | | 415 | | | | |
| Ile | Arg | Asp | Leu | Asp | Asp | His | Leu | Ser | Val | Trp | Ala | Asn | Gln | Leu | Ser | | |
| | | 420 | | | | | | 425 | | | | | 430 | | | | |
| Ala | Ala | Glu | Asp | Ala | Leu | Ile | Glu | Val | Thr | Asp | Val | Gln | Glu | His | Gly | | |
| | | 435 | | | | | 440 | | | | | 445 | | | | | |
| Asn | Arg | Glu | Met | Leu | Lys | Asn | Ile | Gln | Gln | Gly | Leu | Glu | Leu | Ile | Glu | | |
| | 450 | | | | | 455 | | | | | 460 | | | | | | |
| Asp | Ala | Val | Lys | Ala | Thr | Leu | Pro | Arg | Val | Asp | Phe | Ile | Gln | Glu | Leu | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | |
| Leu | Glu | Lys | Glu | Glu | Leu | Pro | Leu | Val | Ala | Ala | Arg | Met | Ser | Leu | Glu | | |
| | | | 485 | | | | | 490 | | | | | | 495 | | | |

Asn Ser

<210> 127
 <211> 178
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 127

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Lys | Ile | Ser | Ser | Cys | Ala | Glu | Ile | Met | Ser | Glu | Val | Lys | Pro | Leu | Phe | | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | | |
| Leu | Lys | Asn | Asp | Ser | Phe | Asp | Leu | Ala | Thr | Gln | Arg | Phe | Gln | Asn | Leu | | |
| | | | 20 | | | | | 25 | | | | | 30 | | | | |
| Ile | Asn | Met | Leu | Gln | Glu | Gln | Ala | Glu | Ile | Tyr | Asn | Glu | Tyr | Glu | Glu | | |
| | | 35 | | | | | 40 | | | | | 45 | | | | | |
| Lys | Asn | Ala | Arg | Val | Gln | Asn | Glu | Ile | Lys | Glu | Gln | Lys | Asp | Phe | Val | | |
| | 50 | | | | | 55 | | | | | 60 | | | | | | |
| Lys | Arg | Cys | Ile | Glu | Asp | Phe | Glu | Ala | Arg | Gly | Leu | Gly | Val | Leu | Lys | | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | | |
| Glu | Glu | Leu | Ala | Ser | Leu | Thr | Arg | Asp | Phe | His | Asp | Lys | Ala | Lys | Ala | | |
| | | | 85 | | | | | 90 | | | | | 95 | | | | |
| Glu | Thr | Ser | Met | Leu | Ile | Glu | Cys | Pro | Cys | Ile | Gly | Phe | Tyr | Tyr | Ser | | |
| | | 100 | | | | | | 105 | | | | | 110 | | | | |
| Ile | His | Gln | Glu | Glu | Gln | Arg | Gln | Arg | Gln | Glu | Arg | Leu | Gln | Lys | Met | | |
| | | 115 | | | | | 120 | | | | | 125 | | | | | |
| Ala | Glu | Arg | Tyr | Arg | Asp | Cys | Lys | Gln | Val | Leu | Glu | Ala | Val | Gln | Val | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | |
| Glu | Gln | Lys | Asp | Met | Ile | Ser | Ser | Arg | Val | Val | Val | Asp | Asp | Ser | Tyr | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |

Phe Glu Glu Glu Lys Glu Glu Gln Lys Val Asp Asn Arg Lys Lys Glu
 165 170 175
 Gln Asp

<210> 128
 <211> 760
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 128
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 Ala Ile Ser Ser Cys Gly Leu Leu Val Ser Leu Gly Val Gly Leu Gly
 20 25 30
 Leu Ser Val Leu Gly Val Leu Leu Leu Leu Leu Ala Gly Leu Leu Leu
 35 40 45
 Phe Lys Ile Gln Ser Met Leu Arg Glu Val Pro Lys Ala Pro Asp Leu
 50 55 60
 Leu Asp Leu Glu Asp Ala Ser Glu Arg Leu Arg Val Lys Ala Ser Arg
 65 70 75 80
 Ser Leu Ala Ser Leu Pro Lys Glu Ile Ser Gln Leu Glu Ser Tyr Ile
 85 90 95
 Arg Ser Ala Ala Asn Asp Leu Asn Thr Ile Lys Thr Trp Pro His Lys
 100 105 110
 Asp Gln Arg Leu Val Glu Thr Val Ser Arg Lys Leu Glu Arg Leu Ala
 115 120 125
 Ala Ala Gln Asn Tyr Met Ile Ser Glu Leu Cys Glu Ile Ser Glu Ile
 130 135 140
 Leu Glu Glu Glu Glu His Leu Ile Leu Ala Gln Glu Ser Leu Glu
 145 150 155 160
 Trp Ile Gly Lys Ser Leu Phe Ser Thr Phe Leu Asp Met Glu Ser Phe
 165 170 175
 Leu Asn Leu Ser His Leu Ser Glu Val Arg Pro Tyr Leu Ala Val Asn
 180 185 190
 Asp Pro Arg Leu Leu Glu Ile Thr Glu Glu Ser Trp Glu Val Val Ser
 195 200 205
 His Phe Ile Asn Val Thr Ser Ala Phe Lys Lys Ala Gln Ile Leu Phe
 210 215 220
 Lys Asn Asn Glu His Ser Arg Met Lys Lys Lys Leu Glu Ser Val Gln
 225 230 235 240
 Glu Leu Leu Glu Thr Phe Ile Tyr Lys Ser Leu Lys Arg Ser Tyr Arg
 245 250 255
 Glu Leu Gly Cys Leu Ser Glu Lys Met Arg Ile Ile His Asp Asn Pro
 260 265 270
 Leu Phe Pro Trp Val Gln Asp Gln Gln Lys Tyr Ala His Ala Lys Asn
 275 280 285
 Glu Phe Gly Glu Ile Ala Arg Cys Leu Glu Glu Phe Glu Lys Thr Phe
 290 295 300
 Phe Trp Leu Asp Glu Glu Cys Ala Ile Ser Tyr Met Asp Cys Trp Asp
 305 310 315 320
 Phe Leu Asn Glu Ser Ile Gln Asn Lys Lys Ser Arg Val Asp Arg Asp
 325 330 335
 Tyr Ile Ser Thr Lys Lys Ile Ala Leu Lys Asp Arg Ala Arg Thr Tyr
 340 345 350
 Ala Lys Val Leu Leu Glu Glu Asn Pro Thr Thr Glu Gly Lys Ile Asp
 355 360 365
 Leu Gln Asp Ala Gln Arg Ala Phe Glu Arg Gln Ser Gln Glu Phe Tyr
 370 375 380
 Thr Leu Glu His Thr Glu Thr Lys Val Arg Leu Glu Ala Leu Gln Gln
 385 390 395 400

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Phe | Ser | Asp | Leu | Arg | Glu | Ala | Thr | Asn | Val | Arg | Gln | Val | Arg | Phe |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Thr | Asn | Ser | Glu | Asn | Ala | Asn | Asp | Leu | Lys | Glu | Ser | Phe | Glu | Lys | Ile |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Asp | Lys | Glu | Arg | Val | Arg | Tyr | Gln | Lys | Glu | Gln | Arg | Leu | Tyr | Trp | Glu |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Thr | Ile | Asp | Arg | Asn | Glu | Gln | Glu | Leu | Arg | Glu | Glu | Ile | Gly | Glu | Ser |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Leu | Arg | Leu | Gln | Asn | Arg | Arg | Lys | Gly | Tyr | Arg | Ala | Gly | Tyr | Asp | Ala |
| 465 | | | | 470 | | | | | | 475 | | | | | 480 |
| Gly | Arg | Leu | Lys | Gly | Leu | Leu | Arg | Gln | Trp | Lys | Lys | Asn | Leu | Arg | Asp |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Val | Glu | Ala | His | Leu | Glu | Asp | Ala | Thr | Met | Asp | Phe | Glu | His | Glu | Val |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Ser | Lys | Ser | Glu | Leu | Cys | Ser | Val | Arg | Ala | Arg | Leu | Glu | Val | Leu | Glu |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Glu | Glu | Leu | Met | Asp | Met | Ser | Pro | Lys | Val | Ala | Asp | Ile | Glu | Glu | Leu |
| | 530 | | | | 535 | | | | | | 540 | | | | |
| Leu | Ser | Tyr | Glu | Glu | Arg | Cys | Ile | Leu | Pro | Ile | Arg | Glu | Asn | Leu | Glu |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Arg | Ala | Tyr | Leu | Gln | Tyr | Asn | Lys | Cys | Ser | Glu | Ile | Leu | Ser | Lys | Ala |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Lys | Phe | Phe | Phe | Pro | Glu | Asp | Glu | Gln | Leu | Leu | Val | Ser | Glu | Ala | Asn |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Leu | Arg | Glu | Val | Gly | Ala | Gln | Leu | Lys | Gln | Val | Gln | Gly | Lys | Cys | Gln |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Glu | Arg | Ala | Gln | Lys | Phe | Ala | Ile | Phe | Glu | Lys | His | Ile | Gln | Glu | Gln |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Lys | Ser | Leu | Ile | Lys | Glu | Gln | Val | Arg | Ser | Phe | Asp | Leu | Ala | Gly | Val |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Gly | Phe | Leu | Lys | Ser | Glu | Leu | Leu | Ser | Ile | Ala | Cys | Asn | Leu | Tyr | Ile |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Lys | Ala | Val | Val | Lys | Glu | Ser | Ile | Pro | Val | Asp | Val | Pro | Cys | Met | Gln |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Leu | Tyr | Tyr | Ser | Tyr | Tyr | Glu | Asp | Asn | Glu | Ala | Val | Val | Arg | Asn | Arg |
| | 675 | | | | | | 680 | | | | | 685 | | | |
| Leu | Leu | Asn | Met | Thr | Glu | Arg | Tyr | Gln | Asn | Phe | Lys | Arg | Ser | Leu | Asn |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Ser | Ile | Gln | Phe | Asn | Gly | Asp | Val | Leu | Leu | Arg | Asp | Pro | Val | Tyr | Gln |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Pro | Glu | Gly | His | Glu | Thr | Arg | Leu | Lys | Glu | Arg | Glu | Leu | Gln | Glu | Thr |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Thr | Leu | Ser | Cys | Lys | Lys | Leu | Lys | Val | Ala | Gln | Asp | Arg | Leu | Ser | Glu |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Leu | Glu | Ser | Arg | Leu | Ser | Arg | Arg | | | | | | | | |
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<210> 129

<211> 341

<212> PRT

<213> Chlamydia pneumoniae

<400> 129

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| Glu | Ser | Phe | Met | Phe | Pro | Ser | Ala | Asn | Gln | Glu | Ser | Arg | Thr | Arg | Asn |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Pro | Leu | Gly | Ile | Phe | His | Gly | Leu | Val | Ala | Cys | Leu | Tyr | Trp | Gly |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Ile | Val | Phe | Val | Ile | Pro | Asn | Phe | Leu | Gly | Ser | Phe | Gly | Asp | Leu | Asp |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ile | Val | Leu | Thr | Arg | Tyr | Thr | Ile | Phe | Gly | Ile | Phe | Ser | Leu | Ile | Ala |
| | 50 | | | | | | 55 | | | | | 60 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Ala | Ile | Lys | Asn | Pro | Ser | Val | Ile | Lys | Lys | Thr | Pro | Leu | Tyr | Ile |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Trp | Arg | Lys | Ser | Leu | Leu | Trp | Thr | Leu | Leu | Ile | Asn | Pro | Val | Tyr | Tyr |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Phe | Gly | Ile | Thr | Leu | Gly | Ile | Arg | Tyr | Val | Gly | Ser | Ala | Ile | Thr | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Ile | Ala | Ser | Leu | Ala | Pro | Thr | Ala | Val | Leu | Tyr | His | Ser | Asn | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Lys | Gln | Lys | Glu | Leu | Pro | Tyr | Ser | Leu | Leu | Phe | Ala | Ile | Ser | Ser | Val |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ile | Ile | Thr | Gly | Val | Ile | Leu | Thr | His | Leu | Ser | Ala | Leu | Asn | Leu | Pro |
| 145 | | | | 150 | | | | | | 155 | | | | 160 | |
| Thr | Ala | Ala | Ser | Pro | Leu | Tyr | Ser | Ile | Leu | Gly | Val | Ile | Ala | Val | Ile |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Leu | Ser | Thr | Ser | Leu | Trp | Val | Ile | Tyr | Val | Ile | Arg | Asn | Gln | Ser | Leu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Leu | Glu | Lys | His | Pro | Asn | Leu | Thr | Pro | Asp | Thr | Trp | Ser | Tyr | Leu | Ile |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Gly | Ile | Ser | Ala | Leu | Ile | Ile | Cys | Leu | Pro | Met | Ile | Ile | Ile | Leu | Asp |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Cys | Gly | Ile | Thr | His | Val | Thr | His | Asn | Leu | Ile | Ser | His | Thr | Pro |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Gly | Ser | Glu | Arg | Leu | Leu | Phe | Leu | Leu | Leu | Cys | Ser | Ala | Met | Gly | Ile |
| | | | 245 | | | | | 250 | | | | | | 255 | |
| Phe | Ser | Ser | Ala | Lys | Ala | Leu | Ile | Ala | Trp | Asn | Lys | Ala | Ser | Leu | Asn |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Ser | Pro | Ala | Leu | Leu | Gly | Ala | Ile | Leu | Ile | Phe | Glu | Pro | Ile | Phe |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Gly | Leu | Val | Leu | Thr | Tyr | Leu | Tyr | Ser | Gln | Ser | Leu | Pro | Ser | Leu | Gln |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Glu | Gly | Ile | Gly | Ile | Phe | Leu | Met | Leu | Gly | Gly | Ser | Leu | Leu | Cys | Leu |
| 305 | | | | | 310 | | | | 315 | | | | | 320 | |
| Val | Leu | Phe | Gly | Arg | Lys | Val | Gln | Lys | Ser | Leu | Glu | Asn | Ser | Gln | Val |
| | | | 325 | | | | | 330 | | | | | | 335 | |
| Ser | Ser | Ser | Asn | Glu | | | | | | | | | | | |
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<210> 130

<211> 264

<212> PRT

<213> Chlamydia pneumoniae

<400> 130

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| Glu | Asp | Arg | Gly | Arg | Met | Leu | Arg | Asn | Gln | Val | Leu | Val | Tyr | Cys | Ser |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |
| Glu | Gly | Val | Ser | Pro | Tyr | Tyr | Leu | Arg | His | Thr | Ile | Arg | Phe | Leu | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Tyr | Tyr | Ser | Thr | Gln | Glu | Gly | Ala | Phe | Asp | Ile | Leu | Arg | Val | Asp | Gly |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Asn | Phe | Leu | Ile | Lys | Asn | Pro | Phe | Trp | Glu | Glu | Thr | Thr | Arg | Leu | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Val | Phe | Pro | Gly | Gly | Ala | Asp | Arg | Pro | Tyr | His | Arg | Val | Leu | His | Gly |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | |
| Leu | Gly | Thr | Ala | Arg | Ile | Phe | Gln | Tyr | Val | Ser | Glu | Gly | Gly | Asn | Phe |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Leu | Gly | Ile | Cys | Ala | Gly | Ala | Tyr | Phe | Gly | Ser | Lys | Met | Ile | Tyr | Phe |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Tyr | Glu | Pro | Glu | Gly | Ala | Pro | Leu | Gln | Gly | Ala | Arg | Asp | Leu | Gly | Phe |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Phe | Pro | Gly | Thr | Ala | Lys | Gly | Pro | Ala | Tyr | Arg | Gly | Asn | Phe | Ser | Tyr |
| | 130 | | | | | 135 | | | | | 140 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ser | Pro | Ser | Gly | Val | Arg | Val | Ser | Pro | Gln | Leu | Phe | Ser | Asp | Phe |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gly | Leu | Gly | Tyr | Ala | Met | Phe | Asn | Gly | Gly | Cys | Phe | Phe | Glu | Gly | Ser |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Glu | Gly | Tyr | Pro | Gly | Val | Asn | Ile | Glu | Ser | Arg | Tyr | Asp | Asp | Leu | Pro |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Gly | Lys | Pro | Ala | Ser | Ile | Val | Ser | Arg | Ile | Val | Ser | Lys | Gly | Leu | Ala |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Val | Leu | Ser | Gly | Pro | His | Ile | Glu | Tyr | Leu | Pro | His | Tyr | Cys | Arg | Met |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Val | Lys | Glu | Asn | Val | Gln | Lys | Thr | Arg | Glu | Phe | Leu | Gln | Arg | Glu | Arg |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Thr | Thr | Leu | Asp | Arg | Tyr | Cys | Gln | Asn | Leu | Val | Gln | Arg | Leu | Arg | Gln |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Pro | Ala | Phe | Ser | Lys | Ala | Asp | Cys | | | | | | | | |
| | | | 260 | | | | | | | | | | | | |

<210> 131

<211> 228

<212> PRT

<213> Chlamydia pneumoniae

<400> 131

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| Asp | Glu | Gln | Tyr | Ile | Leu | Ser | His | Ile | His | Met | Asp | Pro | Arg | Ile | Phe |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Thr | Ser | Glu | Pro | Leu | Gln | Lys | Thr | Tyr | Gln | Lys | Leu | Gln | Glu | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| His | Val | Asn | Asn | Leu | Gly | Ile | Ala | Ser | Gln | Val | Ser | Leu | Thr | Asp | Leu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gln | Asn | Lys | Thr | Gln | Tyr | Glu | Asn | Asn | Leu | Ile | Glu | Thr | Thr | Thr | Asn |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Glu | Ile | Thr | Tyr | Tyr | Phe | Pro | Val | Val | His | Asn | Pro | Asp | Ile | Leu | Arg |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ser | Glu | Trp | Asp | Pro | Ile | Ser | Asn | Gln | Leu | Tyr | Leu | Ile | Phe | Lys | Lys |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Phe | Phe | Ile | His | Tyr | His | Asn | Leu | Phe | Ser | Thr | Ala | Leu | Glu | Arg | Asn |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gln | Ile | Leu | Leu | Ile | Asp | Ser | Leu | Asn | Thr | Gly | Ser | Ser | Asn | Pro | Ile |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ala | Arg | Gln | Met | Glu | Leu | Leu | Ala | Phe | Leu | Cys | Val | Phe | Glu | Gln | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asp | Tyr | Asn | Glu | Asp | Glu | Tyr | Thr | Ile | Glu | Pro | Arg | Asp | Tyr | Phe | Asn |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Arg | Phe | Val | Tyr | Lys | Asn | Ser | Gln | Thr | Ala | Pro | Gln | Ile | Gln | Ser | Phe |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Gly | Leu | Leu | His | Gly | Tyr | Glu | Glu | Met | Ser | Tyr | Ala | Ser | Asn | Asn | Ile |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Arg | Asn | Val | Leu | Thr | His | Ser | Ile | Val | Leu | Cys | Ser | Pro | Ile | Leu | Tyr |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Gln | Leu | Ile | Thr | Glu | Phe | Asp | Thr | Thr | Lys | Ile | His | Ala | Asp | Asp | Phe |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Asp | Cys | Leu | Ile | | | | | | | | | | | | |
| 225 | | | | | | | | | | | | | | | |

<210> 132

<211> 167

<212> PRT

<213> Chlamydia pneumoniae

<400> 132

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Ser | Met | Val | Lys | Cys | Ser | Ser | Ile | Ile | His | Glu | Asn | Lys | Lys | Pro |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |
| Ala | Gln | Leu | Leu | Pro | Glu | Ser | Lys | Phe | Ala | Ala | Ile | Thr | Lys | Leu | Ser |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Leu | Ala | Ile | Leu | Ser | Leu | Phe | Leu | Gly | Ile | Ala | Ala | Cys | Ile | Leu | Ile |
| | 35 | | | | | 40 | | | | | | 45 | | | |
| Ala | Leu | Ser | Gly | Leu | Leu | Pro | Asn | Thr | Leu | Leu | Ile | Ile | Ala | Leu | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Leu | Ile | Ser | Ile | Ile | Val | Leu | Ser | Thr | Gly | Ile | Ser | Leu | Leu | Ile | Gly |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Thr | Gln | Cys | Ser | Lys | Ser | Val | Gln | Lys | Asp | Glu | Gln | Lys | Pro | Lys | Ser |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ile | Phe | Pro | Lys | Glu | Thr | Pro | Ser | Leu | Asp | Pro | Trp | Leu | Leu | Asn | Pro |
| | | | 100 | | | | | 105 | | | | | | 110 | |
| Leu | Lys | Asn | Lys | Ile | Gln | Ser | Ser | Glu | Thr | Leu | Leu | Leu | Asp | Pro | Thr |
| | | 115 | | | | | | 120 | | | | | 125 | | |
| Ser | Ile | Asn | Leu | Lys | Asn | Glu | Leu | Phe | Phe | Pro | Ser | Phe | Glu | Glu | Trp |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Lys | Lys | Ile | Phe | Leu | Lys | Asp | Pro | Asp | Phe | Leu | Ile | Lys | Ser | Ala | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | Asn | Trp | Lys | Ile | Leu | Glu | | | | | | | | | |
| | | | | 165 | | | | | | | | | | | |

<210> 133
 <211> 380
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 133

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Ser | Ser | Leu | Lys | Lys | Glu | Arg | Phe | Ser | Leu | Ser | Leu | Ala | Ile | Phe |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |
| Leu | Ile | Phe | Phe | Phe | Thr | Ser | Ala | Tyr | Val | Phe | Pro | Ser | Ile | Cys | Phe |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Leu | Glu | Leu | Phe | Met | Glu | Asn | Ala | Met | Ser | Ser | Ser | Phe | Val | Tyr | Asn |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gly | Pro | Ser | Trp | Ile | Leu | Lys | Thr | Ser | Val | Ala | Gln | Glu | Val | Phe | Lys |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Lys | His | Gly | Lys | Gly | Ile | Gln | Val | Leu | Leu | Ser | Thr | Ser | Val | Met | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Phe | Ile | Gly | Leu | Gly | Val | Cys | Ala | Phe | Ile | Phe | Pro | Gln | Tyr | Leu | Ile |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Val | Phe | Val | Leu | Thr | Ile | Ala | Leu | Leu | Met | Leu | Ala | Ile | Ser | Leu | Val |
| | | | 100 | | | | | 105 | | | | | | 110 | |
| Leu | Phe | Leu | Leu | Ile | Arg | Ser | Val | Arg | Ser | Ser | Met | Val | Asp | Arg | Leu |
| | | 115 | | | | | 120 | | | | | | 125 | | |
| Trp | Cys | Ser | Glu | Lys | Gly | Tyr | Ala | Leu | His | Gln | His | Glu | Asn | Gly | Pro |
| | 130 | | | | | 135 | | | | | | 140 | | | |
| Phe | Leu | Asp | Val | Lys | Arg | Val | Gln | Gln | Ile | Leu | Leu | Arg | Ser | Pro | Tyr |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ile | Lys | Val | Arg | Ala | Leu | Trp | Pro | Ser | Gly | Asp | Ile | Pro | Glu | Asp | Pro |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ser | Gln | Ala | Ala | Val | Leu | Leu | Leu | Ser | Pro | Trp | Thr | Phe | Phe | Ser | Ser |
| | | | 180 | | | | | 185 | | | | | | 190 | |
| Val | Asp | Val | Glu | Ala | Leu | Leu | Pro | Ser | Pro | Gln | Glu | Lys | Glu | Gly | Lys |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Tyr | Ile | Asp | Pro | Val | Leu | Pro | Lys | Leu | Ser | Arg | Ile | Glu | Arg | Val | Ser |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Leu | Val | Phe | Leu | Ser | Ala | Phe | Thr | Leu | Asp | Asp | Leu | Asn | Glu | Gln |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Val | Asn | Pro | Leu | Met | Asn | Asn | Glu | Glu | Phe | Leu | Phe | Phe | Ile | Asn |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Lys | Lys | Ala | Arg | Glu | His | Gly | Ile | Gln | Asp | Leu | Lys | His | Glu | Ile | Met |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ser | Ser | Leu | Glu | Lys | Thr | Gly | Val | Pro | Leu | Asp | Pro | Ser | Met | Ser | Phe |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Gln | Val | Ser | Gln | Ala | Met | Phe | Ser | Val | Tyr | Arg | Tyr | Leu | Arg | Gln | Arg |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Asp | Leu | Thr | Thr | Ser | Glu | Leu | Arg | Cys | Phe | His | Leu | Leu | Ser | Cys | Phe |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Lys | Gly | Asp | Val | Val | His | Cys | Leu | Ala | Ser | Phe | Glu | Asn | Pro | Lys | Asp |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Leu | Ala | Asp | Ser | Asp | Phe | Leu | Glu | Ala | Cys | Lys | Asn | Val | Glu | Trp | Gly |
| | | | 340 | | | | 345 | | | | | | 350 | | |
| Glu | Phe | Ile | Ser | Ala | Cys | Glu | Lys | Ala | Leu | Leu | Lys | Asn | Pro | Gln | Gly |
| | | 355 | | | | 360 | | | | | | 365 | | | |
| Ile | Ser | Ile | Lys | Asp | Leu | Lys | Gln | Phe | Leu | Val | Arg | | | | |
| | 370 | | | | | 375 | | | | | 380 | | | | |

<210> 134

<211> 326

<212> PRT

<213> Chlamydia pneumoniae

<400> 134

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Met | Ile | Glu | Phe | Ala | Phe | Val | Pro | His | Thr | Ser | Val | Thr | Ala | Asp |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Arg | Ile | Glu | Asp | Arg | Met | Ala | Cys | Arg | Met | Asn | Lys | Leu | Ser | Thr | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Ile | Thr | Ser | Leu | Cys | Val | Leu | Ile | Ser | Ser | Val | Cys | Ile | Met | Ile |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gly | Ile | Leu | Cys | Ile | Ser | Gly | Thr | Val | Gly | Thr | Tyr | Ala | Phe | Val | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gly | Ile | Ile | Phe | Ser | Val | Leu | Ala | Leu | Val | Ala | Cys | Val | Phe | Phe | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Tyr | Phe | Phe | Tyr | Phe | Ser | Ser | Glu | Glu | Phe | Lys | Cys | Ala | Ser | Ser | Gln |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Glu | Phe | Arg | Phe | Leu | Pro | Ile | Pro | Ala | Val | Val | Ser | Ala | Leu | Arg | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Tyr | Glu | Tyr | Ile | Ser | Gln | Asp | Ala | Ile | Asn | Asp | Val | Ile | Lys | Asp | Thr |
| | | 115 | | | | 120 | | | | | | 125 | | | |
| Met | Gln | Leu | Ser | Thr | Leu | Ser | Ser | Leu | Leu | Asp | Pro | Glu | Ala | Phe | Phe |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Leu | Glu | Phe | Pro | Tyr | Phe | Asn | Ser | Leu | Ile | Val | Asn | His | Ser | Met | Lys |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Glu | Ala | Asp | Arg | Leu | Ser | Arg | Glu | Ala | Phe | Leu | Ile | Leu | Leu | Gly | Glu |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Ile | Thr | Trp | Lys | Asp | Cys | Glu | Thr | Lys | Ile | Leu | Pro | Trp | Leu | Lys | Asp |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Pro | Asn | Ile | Thr | Pro | Asp | Asp | Phe | Trp | Lys | Leu | Leu | Lys | Asp | His | Phe |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Asp | Leu | Lys | Asp | Phe | Lys | Lys | Arg | Ile | Ala | Thr | Trp | Ile | Arg | Lys | Ala |
| | 210 | | | | | 215 | | | | | | 220 | | | |
| Tyr | Pro | Glu | Ile | Arg | Leu | Pro | Lys | Lys | His | Cys | Leu | Asp | Lys | Ser | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Tyr | Lys | Gly | Cys | Cys | Lys | Phe | Leu | Leu | Leu | Ser | Glu | Asn | Asp | Val | Gln |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Tyr | Gln | Arg | Leu | Leu | His | Lys | Val | Cys | Tyr | Phe | Ser | Gly | Glu | Phe | Pro |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ala | Met | Val | Leu | Gly | Leu | Gly | Ser | Glu | Val | Pro | Met | Val | Leu | Gly | Leu |
| | | 275 | | | | | 280 | | | | | | 285 | | |

Pro Lys Val Pro Lys Asp Leu Thr Trp Glu Met Phe Met Glu Asn Met
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 Pro Val Leu Leu Gln Ser Lys Arg Glu Gly His Trp Lys Ile Ser Leu
 305 310 315 320
 Glu Asp Val Ala Ser Leu
 325

<210> 135
 <211> 262
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 135
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 Gly Cys Cys Ile Val Gly Tyr Phe Trp Met Arg Lys Glu Ser Ile Val
 20 25 30
 Glu Gln Trp Leu Ser Asn Arg Leu His Thr Gln Val Thr Val Gly Arg
 35 40 45
 Val Ser Ile Arg Thr Ser Gly Ile Lys Ile Arg His Ile Cys Ile His
 50 55 60
 Asn Pro Leu Ala Ser Glu Arg Phe Pro Tyr Ala Ala Glu Ile Glu Tyr
 65 70 75 80
 Ala Asp Val Arg Phe Ser Ser Ile Ser Met Leu Leu Thr Lys Gln Leu
 85 90 95
 Glu Ile Ser Glu Leu Ile Ile His Gly Ala Asn Phe Thr Ile Phe Pro
 100 105 110
 Tyr Asp Ser His Gly Thr Lys Thr Asn Trp Ser Leu Val Trp Lys Asn
 115 120 125
 Phe His Pro Gln Lys Glu Thr Pro Ser Asn Leu Trp Ile Asp Arg Ala
 130 135 140
 Pro Val Leu Ile Arg Arg Cys Leu Phe Leu Asn Thr Arg Leu Tyr Gly
 145 150 155 160
 Leu Arg Ala Asn His Lys Asp Ile Pro His Leu Ser Val Pro Ser Leu
 165 170 175
 Glu Phe His Ser His Thr Ser Ser Ala Lys Glu Leu Pro Lys Leu Ser
 180 185 190
 Glu Ala Leu Pro Ser Leu Leu Tyr Leu Ala Leu Glu Glu Ser Leu Tyr
 195 200 205
 His Leu Asn Leu Pro Gly Asp Ile Ile Lys Pro Leu Ser Gln Gln Ala
 210 215 220
 His Lys His Phe Tyr Ser Ser Tyr Pro Gln Phe Gln Asp Arg Leu Asn
 225 230 235 240
 Asp Ile Asn Thr Pro Gly Thr Pro Thr Glu Glu Ile Ile Gly Phe Ile
 245 250 255
 Arg Gly Leu Phe Phe His
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 <211> 555
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 136
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 1 5 10 15
 Ile Lys Tyr Asn Glu Glu Ala Arg Lys Lys Ile His Lys Gly Val Lys
 20 25 30
 Thr Leu Ala Glu Ala Val Lys Val Thr Leu Gly Pro Lys Gly Arg His
 35 40 45

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Val | Ile | Asp | Lys | Ser | Phe | Gly | Ser | Pro | Gln | Val | Thr | Lys | Asp | Gly |
| 50 | | | | | | 55 | | | | | 60 | | | | |
| Val | Thr | Val | Ala | Lys | Glu | Ile | Glu | Leu | Glu | Asp | Lys | His | Glu | Asn | Met |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Ala | Gln | Met | Val | Lys | Glu | Val | Ala | Ser | Lys | Thr | Ala | Asp | Lys | Ala |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Gly | Asp | Gly | Thr | Thr | Thr | Ala | Thr | Val | Leu | Ala | Glu | Ala | Ile | Tyr | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Glu | Gly | Leu | Arg | Asn | Val | Thr | Ala | Gly | Ala | Asn | Pro | Met | Asp | Leu | Lys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Arg | Gly | Ile | Asp | Lys | Ala | Val | Lys | Val | Val | Val | Asp | Glu | Leu | Lys | Lys |
| | 130 | | | | | | 135 | | | | 140 | | | | |
| Ile | Ser | Lys | Pro | Val | Gln | His | His | Lys | Glu | Ile | Ala | Gln | Val | Ala | Thr |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ile | Ser | Ala | Asn | Asn | Asp | Ser | Glu | Ile | Gly | Asn | Leu | Ile | Ala | Glu | Ala |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Met | Glu | Lys | Val | Gly | Lys | Asn | Gly | Ser | Ile | Thr | Val | Glu | Glu | Ala | Lys |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Gly | Phe | Glu | Thr | Val | Leu | Asp | Val | Val | Glu | Gly | Met | Asn | Phe | Asn | Arg |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Gly | Tyr | Leu | Ser | Ser | Tyr | Phe | Ser | Thr | Asn | Pro | Glu | Thr | Gln | Glu | Cys |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Val | Leu | Glu | Asp | Ala | Leu | Ile | Leu | Ile | Tyr | Asp | Lys | Lys | Ile | Ser | Gly |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ile | Lys | Asp | Phe | Leu | Pro | Val | Leu | Gln | Gln | Val | Ala | Glu | Ser | Gly | Arg |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Pro | Leu | Leu | Ile | Ile | Ala | Glu | Glu | Ile | Glu | Gly | Glu | Ala | Leu | Ala | Thr |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Val | Val | Asn | Arg | Leu | Arg | Ala | Gly | Phe | Arg | Val | Cys | Ala | Val | Lys |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ala | Pro | Gly | Phe | Gly | Asp | Arg | Arg | Lys | Ala | Met | Leu | Glu | Asp | Ile | Ala |
| | 290 | | | | | 295 | | | | 300 | | | | | |
| Ile | Leu | Thr | Gly | Gly | Gln | Leu | Val | Ser | Glu | Glu | Leu | Gly | Met | Lys | Leu |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Glu | Asn | Thr | Thr | Leu | Ala | Met | Leu | Gly | Lys | Ala | Lys | Lys | Val | Ile | Val |
| | | | 325 | | | | | | 330 | | | | | 335 | |
| Thr | Lys | Glu | Asp | Thr | Thr | Ile | Val | Glu | Gly | Leu | Gly | Asn | Lys | Pro | Asp |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ile | Gln | Ala | Arg | Cys | Asp | Asn | Ile | Lys | Lys | Gln | Ile | Glu | Asp | Ser | Thr |
| | | 355 | | | | 360 | | | | | | 365 | | | |
| Ser | Asp | Tyr | Asp | Lys | Glu | Lys | Leu | Gln | Glu | Arg | Leu | Ala | Lys | Leu | Ser |
| | 370 | | | | | 375 | | | | 380 | | | | | |
| Gly | Gly | Val | Ala | Val | Ile | Arg | Val | Gly | Ala | Ala | Thr | Glu | Ile | Glu | Met |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Lys | Glu | Lys | Lys | Asp | Arg | Val | Asp | Asp | Ala | Gln | His | Ala | Thr | Ile | Ala |
| | | | 405 | | | | | | 410 | | | | | 415 | |
| Ala | Val | Glu | Glu | Gly | Ile | Leu | Pro | Gly | Gly | Gly | Thr | Ala | Leu | Val | Arg |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Cys | Ile | Pro | Thr | Leu | Glu | Ala | Phe | Leu | Pro | Met | Leu | Ala | Asn | Glu | Asp |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Glu | Ala | Ile | Gly | Thr | Arg | Ile | Ile | Leu | Lys | Ala | Leu | Thr | Ala | Pro | Leu |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Lys | Gln | Ile | Ala | Ser | Asn | Ala | Gly | Lys | Glu | Gly | Ala | Ile | Ile | Cys | Gln |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Gln | Val | Leu | Ala | Arg | Ser | Ala | Asn | Glu | Gly | Tyr | Asp | Ala | Leu | Arg | Asp |
| | | | 485 | | | | | 490 | | | | | | 495 | |
| Ala | Tyr | Thr | Asp | Met | Ile | Asp | Ala | Gly | Ile | Leu | Asp | Pro | Thr | Lys | Val |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Thr | Arg | Ser | Ala | Leu | Glu | Ser | Ala | Ala | Ser | Ile | Ala | Gly | Leu | Leu | Leu |
| | | 515 | | | | | 520 | | | | | 525 | | | |

Thr Thr Glu Ala Leu Ile Ala Asp Ile Pro Glu Glu Lys Ser Ser Ser
 530 535 540
 Ala Pro Ala Met Pro Ser Ala Gly Met Asp Tyr
 545 550 555

<210> 137
 <211> 102
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 137
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 1 5 10 15
 Ile Leu Val Lys Arg Glu Glu Glu Glu Ala Thr Ala Arg Gly Gly Ile
 20 25 30
 Ile Leu Pro Asp Thr Ala Lys Lys Lys Gln Asp Arg Ala Glu Val Leu
 35 40 45
 Val Leu Gly Thr Gly Lys Arg Thr Asp Asp Gly Thr Leu Leu Pro Phe
 50 55 60
 Glu Val Gln Val Gly Asp Ile Ile Leu Met Asp Lys Tyr Ala Gly Gln
 65 70 75 80
 Glu Ile Thr Ile Asp Asp Glu Glu Tyr Val Ile Leu Gln Ser Ser Glu
 85 90 95
 Ile Met Ala Val Leu Lys
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<210> 138
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 <212> PRT
 <213> Chlamydia pneumoniae

<400> 138
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 20 25 30
 Met Tyr Ala Asn Arg Glu Glu Trp Lys Lys Asp Phe Asp Leu Cys Ser
 35 40 45
 Ser Gly Lys Asp Arg Ser Pro Ile Trp Pro Glu Phe Ser Pro Ser His
 50 55 60
 Tyr Gln Ile Asp Asn Pro Glu Ser Leu Leu Glu Leu Leu Ser Lys Lys
 65 70 75 80
 Phe Ser Val Glu Arg Lys Leu Asp Gln Leu Tyr Ile Tyr Ala His Leu
 85 90 95
 Ile His Asp Gln Asp Ile Thr Asn Pro Glu Gly Glu Ser Asp Tyr Gln
 100 105 110
 Ser Ile Val Tyr Leu Tyr Thr Leu Phe Ser Gln Glu Ile Ser Trp Ile
 115 120 125
 Gln Pro Ala Leu Ile Ala Leu Ser Glu Glu Lys Val Ala Ala Leu Leu
 130 135 140
 Ser Ser Ser Val Leu Ala Pro Tyr Arg Phe Tyr Leu Glu Lys Ile Phe
 145 150 155 160
 Arg Leu Ser Pro His Thr Gly Thr Ala Asn Glu Glu Lys Ile Leu Ala
 165 170 175
 Ser Ser Phe Ala Ala Leu Asn Val Ser Asn Lys Ala Phe Ser Ser Leu
 180 185 190
 Ser Asp Ala Glu Ile Pro Phe Gly Ile Ala Lys Asp Ser Asn Gly Glu
 195 200 205
 Glu His Pro Leu Ser His Ala Leu Ala Ser Leu Tyr Met Gln Ser Pro
 210 215 220

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Gln | Glu | Leu | Arg | Arg | Thr | Ala | Tyr | Leu | Ala | Gln | Phe | Gln | Arg | Tyr | 225 | 230 | 235 | 240 |
| Tyr | Asp | Tyr | Arg | Asn | Thr | Phe | Ala | Asn | Leu | Leu | Asn | Gly | Lys | Val | Gln | 245 | 250 | 255 | |
| Ala | His | Leu | Phe | Glu | Ala | Lys | Ala | Arg | Asn | Tyr | Pro | Ser | Cys | Leu | Glu | 260 | 265 | 270 | |
| Ala | Ser | Leu | Phe | Gln | His | Asn | Ile | Pro | Thr | Thr | Val | Tyr | Ile | Asn | Leu | 275 | 280 | 285 | |
| Ile | Asn | Glu | Thr | Lys | Lys | His | Thr | Ser | Leu | Ile | Asn | Arg | Tyr | Phe | Asn | 290 | 295 | 300 | |
| Leu | Lys | Lys | Glu | Ala | Leu | Asn | Leu | Lys | Glu | Phe | His | Phe | Tyr | Asp | Val | 305 | 310 | 315 | 320 |
| Tyr | Ala | Pro | Ile | Ser | Gln | Thr | Thr | Ser | Lys | Asn | Tyr | Ser | Tyr | Glu | Glu | 325 | 330 | 335 | |
| Gly | Val | Asp | Leu | Val | Cys | Lys | Ser | Leu | Leu | Pro | Leu | Gly | Thr | His | Tyr | 340 | 345 | 350 | |
| Val | Glu | Ile | Leu | Arg | Asn | Gly | Leu | Leu | Ser | Asn | Arg | Trp | Val | Asp | Arg | 355 | 360 | 365 | |
| Tyr | Glu | Asn | Lys | His | Lys | Arg | Ser | Gly | Ala | Tyr | Ser | Ser | Gly | Cys | Tyr | 370 | 375 | 380 | |
| Asp | Ser | Ala | Pro | Tyr | Ile | Leu | Leu | Asn | Tyr | Thr | Asn | Thr | Leu | Tyr | Asp | 385 | 390 | 395 | 400 |
| Val | Ser | Val | Ile | Ala | His | Glu | Ala | Gly | His | Ser | Met | His | Ser | Tyr | Phe | 405 | 410 | 415 | |
| Ser | Arg | Glu | Ala | Gln | Pro | Tyr | His | Asp | Ala | Gln | Tyr | Pro | Leu | Phe | Leu | 420 | 425 | 430 | |
| Ala | Glu | Ile | Ala | Ser | Thr | Phe | Asn | Glu | Met | Leu | Leu | Met | Glu | Ala | Leu | 435 | 440 | 445 | |
| Ser | Lys | Ser | Asp | Gln | Ser | Lys | Glu | Asp | Lys | Ile | Val | Ile | Ile | Thr | Lys | 450 | 455 | 460 | |
| Thr | Leu | Asp | Thr | Ile | Phe | Ala | Thr | Leu | Phe | Arg | Gln | Thr | Phe | Phe | Ala | 465 | 470 | 475 | 480 |
| Ala | Phe | Glu | Tyr | Glu | Ile | His | Ser | Ala | Ala | Glu | Gln | Gly | Thr | Pro | Leu | 485 | 490 | 495 | |
| Thr | Glu | Glu | Phe | Leu | Ser | Ala | Thr | Tyr | Gly | Asn | Leu | Gln | Lys | Glu | Phe | 500 | 505 | 510 | |
| Tyr | Gly | Gly | Val | Val | Thr | Ser | Asp | Ser | Leu | Ser | Ala | Leu | Glu | Trp | Ala | 515 | 520 | 525 | |
| Arg | Ile | Pro | His | Phe | Tyr | Tyr | Asn | Phe | Tyr | Val | Tyr | Gln | Tyr | Ala | Thr | 530 | 535 | 540 | |
| Gly | Ile | Ile | Ala | Ala | Leu | Ser | Phe | Ala | Glu | Lys | Ile | Leu | Thr | Gln | Glu | 545 | 550 | 555 | 560 |
| Pro | Gly | Ala | Leu | Glu | Leu | Tyr | Leu | Lys | Phe | Leu | Lys | Ser | Gly | Arg | Ser | 565 | 570 | 575 | |
| Asp | Phe | Pro | Leu | Asn | Ile | Leu | Lys | Lys | Ser | Gly | Leu | Asp | Met | Thr | Thr | 580 | 585 | 590 | |
| Ser | Ala | Pro | Leu | Asp | Lys | Ala | Phe | Ala | Phe | Ile | Thr | Lys | Lys | Ile | Asp | 595 | 600 | 605 | |
| Leu | Leu | Ser | Ser | Leu | Leu | Ser | Glu | Asp | | | | | | | | 610 | 615 | | |

<210> 139
 <211> 254
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 139
 Val Cys Ser Met Asn Val Ala Asp Leu Leu Ser His Leu Glu Thr Leu
 1 5 10 15
 Leu Ser Ser Lys Ile Phe Gln Asp Tyr Gly Pro Asn Gly Leu Gln Val
 20 25 30

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Asp | Pro | Gln | Thr | Pro | Val | Lys | Lys | Ile | Ala | Val | Ala | Val | Thr | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Asp | Leu | Glu | Thr | Ile | Lys | Gln | Ala | Val | Ala | Ala | Glu | Ala | Asn | Val | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Val | His | His | Gly | Ile | Phe | Trp | Lys | Gly | Met | Pro | Tyr | Pro | Ile | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Met | Ile | His | Lys | Arg | Ile | Gln | Leu | Leu | Ile | Glu | His | Asn | Ile | Gln |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Leu | Ile | Ala | Tyr | His | Leu | Pro | Leu | Asp | Ala | His | Pro | Thr | Leu | Gly | Asn |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asn | Trp | Arg | Val | Ala | Leu | Asp | Leu | Asn | Trp | His | Asp | Leu | Lys | Pro | Phe |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Ser | Ser | Leu | Pro | Tyr | Leu | Gly | Val | Gln | Gly | Ser | Phe | Ser | Pro | Ile |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asp | Ile | Asp | Ser | Phe | Ile | Asp | Leu | Leu | Ser | Gln | Tyr | Tyr | Gln | Ala | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Leu | Lys | Gly | Ser | Ala | Leu | Gly | Gly | Pro | Ser | Arg | Val | Ser | Ser | Ala | Ala |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Leu | Ile | Ser | Gly | Ala | Tyr | Arg | Glu | Leu | Ser | Ser | Ala | Ala | Ala | Thr | Ser |
| | | | 180 | | | | 185 | | | | | | 190 | | |
| Gln | Val | Asp | Cys | Phe | Ile | Thr | Gly | Asn | Phe | Asp | Glu | Pro | Ala | Trp | Ser |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Thr | Ala | Leu | Glu | Ser | Asn | Ile | Asn | Phe | Leu | Ala | Phe | Gly | His | Thr | Ala |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Thr | Glu | Lys | Val | Gly | Pro | Lys | Ser | Leu | Ala | Glu | His | Leu | Lys | Ser | Glu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Phe | Pro | Ile | Ser | Thr | Thr | Phe | Ile | Asp | Thr | Ala | Asn | Pro | Phe | | |
| | | | | 245 | | | | | 250 | | | | | | |

<210> 140

<211> 465

<212> PRT

<213> Chlamydia pneumoniae

<400> 140

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Asn | Ser | Arg | Leu | Phe | Leu | Ala | Ile | Lys | Asp | Gln | Leu | Leu | Gln | Asn |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Met | Trp | Lys | Leu | Thr | Lys | Arg | Asn | Ser | Met | Leu | Asn | Cys | Ser | Asn | Gln |
| | | | 20 | | | | 25 | | | | | | 30 | | |
| Lys | His | Thr | Val | Thr | Phe | Glu | Glu | Ala | Cys | Gln | Val | Phe | Pro | Gly | Gly |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Val | Asn | Ser | Pro | Val | Arg | Ala | Cys | Arg | Ser | Val | Gly | Val | Thr | Pro | Pro |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Val | Ser | Ser | Ala | Gln | Gly | Asp | Ile | Phe | Leu | Asp | Thr | His | Gly | Arg |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Glu | Phe | Ile | Asp | Phe | Cys | Gly | Gly | Trp | Gly | Ala | Leu | Ile | His | Gly | His |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ser | His | Pro | Lys | Ile | Val | Lys | Ala | Ile | Gln | Lys | Thr | Ala | Leu | Lys | Gly |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Thr | Ser | Tyr | Gly | Leu | Thr | Ser | Glu | Glu | Glu | Ile | Leu | Phe | Ala | Thr | Met |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Leu | Ser | Ser | Leu | Lys | Leu | Lys | Glu | His | Lys | Ile | Arg | Phe | Val | Ser |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ser | Gly | Thr | Glu | Ala | Thr | Met | Thr | Ala | Val | Arg | Leu | Ala | Arg | Gly | Ile |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Thr | Asn | Arg | Ser | Ile | Ile | Ile | Lys | Phe | Ile | Gly | Gly | Tyr | His | Gly | His |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Ala | Asp | Thr | Leu | Leu | Gly | Gly | Ile | Ser | Thr | Thr | Glu | Glu | Thr | Ile | Asp |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Asn | Leu | Thr | Ser | Leu | Ile | His | Thr | Pro | Ser | Pro | His | Ser | Leu | Leu | Ile |
| | | 195 | | | | | 200 | | | | | 205 | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ser | Leu | Pro | Tyr | Asn | Asn | Ser | Gln | Ile | Leu | His | His | Val | Met | Glu | Ala | |
| 210 | | | | | | 215 | | | | | 220 | | | | | |
| Leu | Gly | Pro | Gln | Val | Ala | Gly | Ile | Ile | Phe | Glu | Pro | Ile | Cys | Ala | Asn | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Met | Gly | Ile | Val | Leu | Pro | Lys | Ala | Glu | Phe | Leu | Asp | Asp | Ile | Ile | Glu | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Leu | Cys | Lys | Arg | Phe | Gly | Ser | Leu | Ser | Ile | Met | Asp | Glu | Val | Val | Thr | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Gly | Phe | Arg | Val | Ala | Phe | Gln | Gly | Ala | Gln | Asp | Ile | Phe | Asn | Leu | Ser | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Pro | Asp | Ile | Thr | Ile | Tyr | Gly | Lys | Ile | Leu | Gly | Gly | Gly | Leu | Pro | Ala | |
| 290 | | | | | | 295 | | | | | 300 | | | | | |
| Ala | Ala | Leu | Val | Gly | His | Arg | Ser | Ile | Leu | Asp | His | Leu | Met | Pro | Glu | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Gly | Thr | Ile | Phe | Gln | Ala | Gly | Thr | Met | Ser | Gly | Asn | Phe | Leu | Ala | Met | |
| | | | | 325 | | | | | 330 | | | | | 335 | | |
| Ala | Thr | Gly | His | Ala | Ala | Ile | Gln | Leu | Cys | Gln | Ser | Glu | Gly | Phe | Tyr | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| Asp | His | Leu | Ser | Gln | Leu | Glu | Ala | Leu | Phe | Tyr | Ser | Pro | Ile | Glu | Glu | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| Glu | Ile | Arg | Ser | Gln | Gly | Phe | Pro | Val | Ser | Leu | Val | His | Gln | Gly | Thr | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Met | Phe | Ser | Leu | Phe | Phe | Thr | Glu | Ser | Ala | Pro | Thr | Asn | Phe | Asp | Glu | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| Ala | Lys | Asn | Ser | Asp | Val | Glu | Lys | Phe | Gln | Thr | Phe | Tyr | Ser | Glu | Val | |
| | | | | 405 | | | | | 410 | | | | | 415 | | |
| Phe | Asp | Asn | Gly | Val | Tyr | Leu | Ser | Pro | Ser | Pro | Leu | Glu | Ala | Asn | Phe | |
| | | 420 | | | | | | 425 | | | | 430 | | | | |
| Ile | Ser | Ser | Ala | His | Thr | Glu | Glu | Asn | Leu | Thr | Tyr | Ala | Gln | Asn | Ile | |
| | | 435 | | | | | 440 | | | | | 445 | | | | |
| Ile | Ile | Asp | Ser | Leu | Ile | Lys | Ile | Phe | Asp | Ser | Ser | Ala | Gln | Arg | Phe | |
| | 450 | | | | | 455 | | | | | 460 | | | | | |
| Phe | | | | | | | | | | | | | | | | |
| 465 | | | | | | | | | | | | | | | | |

<210> 141
 <211> 198
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| <400> 141 | | | | | | | | | | | | | | | | |
| Ser | Pro | Thr | Lys | Asn | Lys | Leu | Arg | Asp | Ile | Met | Lys | Ile | Pro | Tyr | Ala | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| Arg | Leu | Glu | Lys | Gly | Ser | Leu | Leu | Val | Ala | Ser | Pro | Asp | Ile | Asn | Gln | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Gly | Val | Phe | Ala | Arg | Ser | Val | Ile | Leu | Leu | Cys | Glu | His | Ser | Leu | Asn | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Gly | Ser | Phe | Gly | Leu | Ile | Leu | Asn | Lys | Thr | Leu | Gly | Phe | Glu | Ile | Ser | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Asp | Asp | Ile | Phe | Thr | Phe | Glu | Lys | Val | Ser | Asn | His | Asn | Ile | Arg | Phe | |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | | |
| Cys | Met | Gly | Gly | Pro | Leu | Gln | Ala | Asn | Gln | Met | Met | Leu | Leu | His | Ser | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Cys | Ser | Glu | Ile | Pro | Glu | Gln | Thr | Leu | Glu | Ile | Cys | Pro | Ser | Val | Tyr | |
| | | 100 | | | | | | 105 | | | | | 110 | | | |
| Leu | Gly | Gly | Asp | Leu | Pro | Phe | Leu | Gln | Glu | Ile | Ala | Ser | Ser | Glu | Ser | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Gly | Pro | Glu | Ile | Asn | Leu | Cys | Phe | Gly | Tyr | Ser | Gly | Trp | Gln | Ala | Gly | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Gln | Leu | Glu | Lys | Glu | Phe | Leu | Ser | Asn | Asp | Trp | Phe | Leu | Ala | Pro | Gly | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |

Asn Lys Asp Tyr Val Phe Tyr Ser Glu Pro Glu Asp Leu Trp Ala Leu
165 170 175
Val Leu Lys Asp Leu Gly Gly Lys Tyr Ala Ser Leu Ser Thr Val Pro
180 185 190
Asp Asn Leu Leu Asn
195

<210> 142
<211> 156
<212> PRT
<213> Chlamydia pneumoniae

<400> 142
Pro Arg Ser Asn Gln Gln Lys Ile Phe Cys Met Ser Leu Glu Lys Glu
1 5 10 15
Leu Leu Glu Glu Thr Pro Leu Val Leu Asn Phe Tyr Lys Leu Val
20 25 30
Ser Phe Cys Asn Tyr Ala Gly Met Ile Leu Gly Thr Glu Glu Lys Lys
35 40 45
Phe Ala Ile Tyr Gly His Val Ser Met Gly Gln Ala Phe Gln Gly Ala
50 55 60
Asp Thr Glu Gly His Ser Pro Gln Arg Pro Phe Ala His Asp Leu Leu
65 70 75 80
Asn Phe Val Phe Ser Gly Phe Asp Ile Gln Val Leu Arg Val Val Ile
85 90 95
Asn Asp Tyr Lys Asp Asn Val Phe Tyr Thr Arg Leu Phe Leu Glu Gln
100 105 110
Lys Asp Arg Glu Phe Leu Tyr Val Val Asp Val Asp Ala Arg Pro Ser
115 120 125
Asp Ser Ile Pro Leu Ala Leu Thr His Lys Ile Pro Ile Leu Cys Val
130 135 140
Lys Ser Val Phe Asp Ala Val Val Pro Tyr Glu Glu
145 150 155

<210> 143
<211> 236
<212> PRT
<213> Chlamydia pneumoniae

<400> 143
His Ser Ser Ser Ala Val Glu Lys Asp Leu His Leu His Glu Lys Lys
1 5 10 15
Cys Leu Ala His Glu Ala Ala Thr Gln Val Thr Ser Gly Met Ile Leu
20 25 30
Gly Leu Gly Ser Gly Ser Thr Ala Lys Glu Phe Ile Phe Ala Leu Ala
35 40 45
His Arg Ile Gln Thr Glu Ser Leu Ala Val His Ala Ile Ala Ser Ser
50 55 60
Gln Asn Ser Tyr Ala Leu Ala Lys Gln Leu Ala Ile Pro Leu Leu Asn
65 70 75 80
Pro Glu Lys Phe Ser Ser Leu Asp Leu Thr Val Asp Gly Ala Asp Glu
85 90 95
Val Asp Pro Gln Leu Arg Met Ile Lys Gly Gly Gly Gly Ala Ile Phe
100 105 110
Arg Glu Lys Ile Leu Leu Arg Ala Ala Lys Arg Ser Ile Ile Leu Val
115 120 125
Asp Glu Ser Lys Leu Val Pro Val Leu Gly Lys Phe Arg Val Pro Leu
130 135 140
Glu Ile Ser Arg Phe Gly Arg Ser Ala Ile Ile Glu Glu Ile Arg His
145 150 155 160

Asp Ile Val Ala Gly Tyr Arg Lys Val Ile Arg Asp Leu Tyr Asp Ala
 180 185 190
 Gly Cys Arg Tyr Leu Gln Leu Asp Asp Cys Thr Arg Gly Gly Leu Val
 195 200 205
 Asp Pro Arg Val Cys Ser Trp Tyr Gly Ile Asp Glu Lys Gly Leu Gln
 210 215 220
 Asp Leu Ile Gln Gln Tyr Leu Leu Ile Asn Asn Leu Val Ile Ala Asp
 225 230 235 240
 Arg Pro Asp Asp Leu Val Val Asn Leu His Val Cys Arg Gly Asn Tyr
 245 250 255
 His Ser Lys Phe Phe Ala Ser Gly Ser Tyr Asp Phe Ile Ala Lys Pro
 260 265 270
 Leu Phe Glu Gln Thr Asn Val Asp Gly Tyr Tyr Leu Glu Phe Asp His
 275 280 285
 Glu Arg Ser Gly Asp Phe Ser Pro Leu Thr Phe Ile Ser Gly Glu Lys
 290 295 300
 Thr Val Cys Leu Gly Leu Val Thr Ser Lys Thr Pro Thr Leu Glu Asn
 305 310 315 320
 Lys Asp Glu Val Ile Ala Arg Ile His Gln Ala Ala Asp Tyr Leu Pro
 325 330 335
 Leu Glu Arg Leu Ser Leu Ser Pro Gln Cys Gly Phe Ala Ser Cys Glu
 340 345 350
 Ile Gly Asn Lys Leu Thr Glu Glu Gln Trp Ala Lys Val Ala Leu
 355 360 365
 Val Lys Glu Ile Ser Glu Glu Val Trp Lys
 370 375

<210> 146
 <211> 873
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 146
 Lys Val Leu Gly Val Asn Phe Met Glu Lys Phe Ser Asp Ala Val Ser
 1 5 10 15
 Glu Ala Leu Glu Lys Ala Phe Glu Leu Ala Lys Ser Ser Lys His Thr
 20 25 30
 Tyr Val Thr Glu Asn His Leu Leu Leu Ala Leu Leu Glu Asn Thr Glu
 35 40 45
 Ser Leu Phe Tyr Leu Val Ile Lys Asp Ile His Gly Asn Pro Gly Leu
 50 55 60
 Leu Asn Thr Ala Val Lys Asp Ala Leu Ser Arg Glu Pro Thr Val Val
 65 70 75 80
 Glu Gly Glu Val Asp Pro Lys Pro Ser Pro Gly Leu Gln Thr Leu Leu
 85 90 95
 Arg Asp Ala Lys Gln Glu Ala Lys Thr Leu Gly Asp Glu Tyr Ile Ser
 100 105 110
 Gly Asp His Leu Leu Leu Ala Phe Trp Ser Ser Asn Lys Glu Pro Phe
 115 120 125
 Asn Ser Trp Lys Gln Thr Thr Lys Val Ser Phe Lys Asp Leu Lys Asn
 130 135 140
 Leu Ile Thr Lys Ile Arg Arg Gly Asn Arg Met Asp Ser Pro Ser Ala
 145 150 155 160
 Glu Ser Asn Phe Gln Gly Leu Glu Lys Tyr Cys Lys Asn Leu Thr Ala
 165 170 175
 Leu Ala Arg Glu Gly Lys Leu Asp Pro Val Ile Gly Arg Asp Glu Glu
 180 185 190
 Ile Arg Arg Thr Ile Gln Val Leu Ser Arg Arg Thr Lys Asn Asn Pro
 195 200 205
 Met Leu Ile Gly Glu Pro Gly Val Gly Lys Thr Ala Ile Ala Glu Gly
 210 215 220

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Ala | Leu | Arg | Leu | Ile | Gln | Gly | Asp | Val | Pro | Glu | Ser | Leu | Lys | Gly |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Lys | Gln | Leu | Tyr | Val | Leu | Asp | Met | Gly | Ala | Leu | Ile | Ala | Gly | Ala | Lys |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Tyr | Arg | Gly | Glu | Phe | Glu | Glu | Arg | Leu | Lys | Ser | Val | Leu | Lys | Asp | Val |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Glu | Ser | Gly | Asp | Gly | Glu | His | Ile | Ile | Phe | Ile | Asp | Glu | Val | His | Thr |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Val | Gly | Ala | Gly | Ala | Thr | Asp | Gly | Ala | Met | Asp | Ala | Ala | Asn | Leu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Leu | Lys | Pro | Ala | Leu | Ala | Arg | Gly | Thr | Leu | His | Cys | Ile | Gly | Ala | Thr |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Thr | Leu | Asn | Glu | Tyr | Gln | Lys | Tyr | Ile | Glu | Lys | Asp | Ala | Ala | Leu | Glu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Arg | Arg | Phe | Gln | Pro | Ile | Phe | Val | Thr | Glu | Pro | Ser | Leu | Glu | Asp | Ala |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Val | Phe | Ile | Leu | Arg | Gly | Leu | Arg | Glu | Lys | Tyr | Glu | Ile | Phe | His | Gly |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Val | Arg | Ile | Thr | Glu | Gly | Ala | Leu | Asn | Ala | Ala | Val | Leu | Leu | Ser | Tyr |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Arg | Tyr | Ile | Pro | Asp | Arg | Phe | Leu | Pro | Asp | Lys | Ala | Ile | Asp | Leu | Ile |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Asp | Glu | Ala | Ala | Ser | Leu | Ile | Arg | Met | Gln | Ile | Gly | Ser | Leu | Pro | Leu |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Pro | Ile | Asp | Glu | Lys | Glu | Arg | Glu | Leu | Ala | Ala | Leu | Ile | Val | Lys | Gln |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Glu | Ala | Ile | Lys | Arg | Glu | Gln | Ser | Pro | Ser | Tyr | Gln | Glu | Glu | Ala | Asp |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Ala | Met | Gln | Lys | Ser | Ile | Asp | Ala | Leu | Arg | Glu | Glu | Leu | Ala | Ser | Leu |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Arg | Leu | Gly | Trp | Asp | Glu | Glu | Lys | Lys | Leu | Ile | Ser | Gly | Leu | Lys | Glu |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Lys | Lys | Asn | Ser | Leu | Glu | Ser | Met | Lys | Phe | Ser | Glu | Glu | Glu | Ala | Glu |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Arg | Val | Ala | Asp | Tyr | Asn | Arg | Val | Ala | Glu | Leu | Arg | Tyr | Ser | Leu | Ile |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Pro | Gln | Leu | Glu | Glu | Glu | Ile | Lys | Gln | Asp | Glu | Ala | Ser | Leu | Asn | Gln |
| | | 515 | | | | | 520 | | | | | | 525 | | |
| Arg | Asp | Asn | Arg | Leu | Leu | Gln | Glu | Glu | Val | Asp | Glu | Arg | Leu | Ile | Ala |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Gln | Val | Val | Ala | Asn | Trp | Thr | Gly | Ile | Pro | Val | Gln | Lys | Met | Leu | Glu |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Gly | Glu | Ala | Glu | Lys | Leu | Leu | Ile | Leu | Glu | Glu | Ser | Leu | Glu | Glu | Arg |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Val | Val | Gly | Gln | Pro | Phe | Ala | Val | Ser | Ala | Val | Ser | Asp | Ser | Ile | Arg |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Ala | Ala | Arg | Val | Gly | Leu | Asn | Asp | Pro | Gln | Arg | Pro | Leu | Gly | Val | Phe |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Leu | Phe | Leu | Gly | Pro | Thr | Gly | Val | Gly | Lys | Thr | Glu | Leu | Ala | Lys | Ala |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Leu | Ala | Asp | Leu | Leu | Phe | Asn | Lys | Glu | Glu | Ala | Met | Val | Arg | Phe | Asp |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Met | Ser | Glu | Tyr | Met | Glu | Lys | His | Ser | Ile | Ser | Lys | Leu | Ile | Gly | Ser |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Ser | Pro | Gly | Tyr | Val | Gly | Tyr | Glu | Glu | Gly | Gly | Ser | Leu | Ser | Glu | Ala |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Leu | Arg | Arg | Arg | Pro | Tyr | Ser | Val | Val | Leu | Phe | Asp | Glu | Ile | Glu | Lys |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Ala | Asp | Lys | Glu | Val | Leu | Asn | Ile | Leu | Leu | Gln | Val | Phe | Asp | Asp | Gly |
| | 690 | | | | | 695 | | | | | | 700 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Leu | Thr | Asp | Gly | Lys | Lys | Arg | Lys | Val | Asn | Cys | Lys | Asn | Ala | Leu |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Phe | Ile | Met | Thr | Ser | Asn | Ile | Gly | Ser | Pro | Glu | Leu | Ala | Asp | Tyr | Cys |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Ser | Lys | Lys | Gly | Ser | Glu | Leu | Thr | Lys | Glu | Ala | Ile | Leu | Ser | Val | Val |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Ser | Pro | Val | Leu | Lys | Arg | Tyr | Leu | Ser | Pro | Glu | Phe | Met | Asn | Arg | Ile |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Asp | Glu | Ile | Leu | Pro | Phe | Val | Pro | Leu | Thr | Lys | Glu | Asp | Ile | Val | Lys |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Ile | Val | Gly | Ile | Gln | Met | Arg | Arg | Ile | Ala | Gln | Arg | Leu | Lys | Ala | Arg |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Arg | Ile | Asn | Leu | Ser | Trp | Asp | Asp | Ser | Val | Ile | Leu | Phe | Leu | Ser | Glu |
| | | | 805 | | | | | 810 | | | | | | 815 | |
| Gln | Gly | Tyr | Asp | Ser | Ala | Phe | Gly | Ala | Arg | Pro | Leu | Lys | Arg | Leu | Ile |
| | | | 820 | | | | 825 | | | | | | 830 | | |
| Gln | Gln | Lys | Val | Val | Ile | Leu | Leu | Ser | Lys | Ala | Leu | Leu | Lys | Gly | Asp |
| | | 835 | | | | | 840 | | | | | 845 | | | |
| Ile | Lys | Pro | Asp | Thr | Ser | Ile | Glu | Leu | Thr | Met | Ala | Lys | Glu | Val | Leu |
| | 850 | | | | | 855 | | | | | 860 | | | | |
| Val | Phe | Lys | Lys | Val | Glu | Thr | Pro | Ser | | | | | | | |
| 865 | | | | | 870 | | | | | | | | | | |

<210> 147

<211> 551

<212> PRT

<213> Chlamydia pneumoniae

<400> 147

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Cys | Ala | Ala | Ser | Phe | Ile | Trp | Leu | Asn | Lys | Ser | Ser | His | Arg | Asn |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Arg | Ser | Pro | Met | Phe | Lys | Ser | Phe | Ile | Val | Arg | Tyr | Met | Phe | Val |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Gly | Gly | Leu | Val | Ser | Phe | Leu | Leu | Pro | Ile | Pro | Asp | Leu | Glu | Cys | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Asn | Asn | Val | Thr | Lys | Thr | Tyr | Asp | Lys | Lys | Ala | Ser | Val | Ile | Ser | Arg |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Asp | Leu | Lys | Leu | Gln | Glu | Asp | Cys | Gln | Lys | Phe | Trp | Asn | Leu | Asp | Pro |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Tyr | Lys | Leu | Glu | Ser | Leu | Cys | Ala | Tyr | Gln | Val | Leu | Tyr | His | Asp | Asp |
| | | | | 85 | | | | 90 | | | | | | 95 | |
| Tyr | Ser | Ser | Lys | Arg | Ile | Arg | Glu | Leu | Phe | Pro | Gln | Ile | Gln | Lys | Asp |
| | | | 100 | | | | 105 | | | | | | 110 | | |
| Glu | Val | Pro | Ile | Phe | Ala | Thr | Met | Ile | Leu | Thr | Leu | Gly | Lys | Val | Asp |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Arg | Gly | Phe | Ser | Pro | Glu | Glu | Ile | Ser | Leu | Ile | Gln | Lys | Leu | Ser | Tyr |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Pro | Gly | Leu | Ser | Leu | Ala | Ser | Leu | Arg | Gly | Ser | Thr | Glu | Ile | Asp | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asn | Thr | Asp | Leu | Ala | Arg | Ala | Leu | Val | Val | Ser | Glu | Phe | Ser | Gly | Asp |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Gly | Lys | Asn | Arg | Ala | Asp | Tyr | Tyr | Ser | Asn | Cys | Leu | Asp | Ile | Leu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ala | Leu | Arg | Ile | His | Ala | Glu | Arg | Gln | Arg | Tyr | Leu | Asp | Gln | Ser | Pro |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Cys | Val | Pro | Gly | Thr | Ser | Glu | Phe | His | Lys | Ala | Thr | Ile | Glu | Ala | Ile |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Asn | Thr | Ile | Leu | Phe | Tyr | Glu | Glu | Ala | Val | Arg | Tyr | Pro | Ser | Lys | Lys |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Glu | Met | Phe | Ser | Asp | Glu | Phe | Ser | Phe | Leu | Ser | Ser | Val | Thr | Asp | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 | |

Lys Phe Gly Val Cys Leu Gly Val Ser Ser Leu Tyr Phe Ser Leu Ser
 260 265 270
 Gln Arg Leu Asp Leu Pro Leu Glu Ala Val Thr Pro Pro Gly His Ile
 275 280 285
 Tyr Leu Arg Tyr Gln Gly Gly Glu Val Asn Ile Glu Thr Thr Ala Gly
 290 295 300
 Gly Arg His Leu Pro Thr Ala Ser Tyr Cys Asp Cys Leu Asp Leu Glu
 305 310 315 320
 Asp Leu Gln Val Arg Thr Pro Glu Glu Met Ile Gly Leu Thr Phe Met
 325 330 335
 Asn Gln Gly Ser Phe Ala Leu Gln Lys Lys Lys Tyr Lys Glu Ala Glu
 340 345 350
 Glu Ala Tyr Lys Lys Ala Gln Glu Tyr Leu Gly Asp Glu Glu Leu Gln
 355 360 365
 Glu Leu Leu Gly Phe Val Gln Ile Leu Gly Gly Lys Lys Lys Glu Gly
 370 375 380
 Lys Ser Leu Ile Gly Lys Ser Pro Arg Ala Ser Gln Lys Gly Ser Val
 385 390 395 400
 Ala Tyr Asp Tyr Leu Lys Gly Arg Ile Asn Ile Pro Thr Leu Ala Leu
 405 410 415
 Leu Phe Ser Tyr Pro Gly Ser Asn Tyr Glu Glu Ile Ala Ser Tyr Glu
 420 425 430
 Glu Glu Leu Lys Lys Ala Met Lys Ser Ser Met Pro Cys Cys Glu Gly
 435 440 445
 Gln Arg Arg Leu Ala Ser Val Ala Phe His Leu Gly Lys Thr Ala Glu
 450 455 460
 Ala Val Ala Leu Leu Glu Lys Cys Val Glu Asp Ile Pro Asn Asp Leu
 465 470 475 480
 Ser Leu His Leu Arg Leu Cys Lys Ile Leu Cys Asp Arg His Glu Tyr
 485 490 495
 Thr Lys Ala Leu Lys Tyr Phe Ile Ile Ala Glu Arg Leu Met Glu Asp
 500 505 510
 Gln Gly Phe Leu Lys Lys Asp Asn Arg Ser Phe Ala Leu Phe Tyr Glu
 515 520 525
 Val Lys Lys Ile Ile Ser Lys Val Ala Pro Gln Lys Ala Asn Thr Leu
 530 535 540
 Leu Leu Met Glu Ser Glu Arg
 545 550

<210> 148
 <211> 167
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 148
 Ile Ile Val Gly Ile Ser Met Ser Ser Ser Glu Val Val Phe Gln Thr
 1 5 10 15
 Val His Gly Leu Gly Phe Gly Gly Leu Ser Ser Lys Ser Val Val Pro
 20 25 30
 Phe Lys Lys Ser Leu Ser Asp Ala Pro Arg Val Val Cys Ser Ile Leu
 35 40 45
 Val Leu Thr Leu Gly Leu Gly Ala Leu Val Cys Gly Ile Ala Ile Thr
 50 55 60
 Cys Trp Cys Val Pro Gly Val Ile Leu Met Gly Gly Ile Cys Ala Ile
 65 70 75 80
 Val Leu Gly Ala Ile Ser Leu Ala Leu Ser Leu Phe Trp Leu Trp Gly
 85 90 95
 Leu Phe Ser Asn Cys Cys Gly Ser Lys Arg Val Leu Pro Gly Glu Gly
 100 105 110
 Leu Leu Arg Asp Lys Leu Leu Asp Gly Gly Phe Ser Arg Ala Ala Pro
 115 120 125

Ser Gly Met Gly Leu Pro Gly Asp Gly Ser Pro Arg Ala Ser Thr Pro
 130 135 140
 Ser Cys Leu Glu Glu Leu Gln Ala Glu Ile Gln Ala Val Thr Gln Ala
 145 150 155 160
 Ile Asp Gln Met Ser Asp Asp
 165

<210> 149
 <211> 153
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 149
 His Gly Gly Pro Met Ala Val Gln Ser Ile Lys Glu Ala Val Thr Ser
 1 5 10 15
 Ala Ala Thr Ser Val Gly Cys Val Asn Cys Ser Arg Glu Ala Ile Pro
 20 25 30
 Ala Phe Asn Thr Glu Glu Arg Ala Thr Ser Ile Ala Arg Ser Val Ile
 35 40 45
 Ala Ala Ile Ile Ala Val Val Ala Ile Ser Leu Leu Gly Leu Gly Leu
 50 55 60
 Val Val Leu Ala Gly Cys Cys Pro Leu Gly Met Ala Ala Gly Ala Ile
 65 70 75 80
 Thr Met Leu Leu Gly Val Ala Leu Leu Ala Trp Ala Ile Leu Ile Thr
 85 90 95
 Leu Arg Leu Leu Asn Ile Pro Lys Ala Glu Ile Pro Ser Pro Gly Asn
 100 105 110
 Asn Gly Glu Pro Asn Glu Arg Asn Ser Ala Thr Pro Pro Leu Glu Gly
 115 120 125
 Gly Val Ala Gly Glu Ala Gly Arg Gly Gly Gly Ser Pro Leu Thr Gln
 130 135 140
 Leu Asp Leu Asn Ser Gly Ala Gly Ser
 145 150

<210> 150
 <211> 627
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 150
 Gly Lys Trp Trp Arg Val Ser Ser Met Glu Ser Glu Lys Asp Ile Gly
 1 5 10 15
 Ala Lys Phe Leu Gly Asp Tyr Arg Ile Leu Tyr Arg Lys Gly Gln Ser
 20 25 30
 Leu Trp Ser Glu Asp Leu Leu Ala Glu His Arg Phe Ile Lys Lys Arg
 35 40 45
 Tyr Leu Ile Arg Leu Leu Leu Pro Asp Leu Gly Ser Ser Gln Pro Phe
 50 55 60
 Met Glu Ala Phe His Asp Val Val Val Lys Leu Ala Lys Leu Asn His
 65 70 75 80
 Pro Gly Ile Leu Ser Ile Glu Asn Val Ser Glu Ser Glu Gly Arg Cys
 85 90 95
 Phe Leu Val Thr Gln Glu Gln Asp Ile Pro Ile Leu Ser Leu Thr Gln
 100 105 110
 Tyr Leu Lys Ser Ile Pro Arg Lys Leu Thr Glu Leu Glu Ile Val Asp
 115 120 125
 Ile Val Ser Gln Leu Ala Ser Leu Leu Asp Tyr Val His Ser Glu Gly
 130 135 140
 Leu Ala Gln Glu Glu Trp Asn Leu Asp Ser Val Tyr Ile His Ile Leu
 145 150 155 160

<210> 151
 <211> 665
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 151
 Glu Arg Phe Met Lys Glu Glu Asn Ser Gln Ala His Tyr Leu Ala Leu
 1 5 10 15
 Cys Arg Glu Leu Glu Asp His Asp Tyr Ser Tyr Tyr Val Leu His Arg
 20 25 30
 Pro Arg Ile Ser Asp Tyr Glu Tyr Asp Met Lys Leu Arg Lys Leu Leu
 35 40 45
 Glu Ile Glu Arg Ser His Pro Glu Trp Lys Val Leu Trp Ser Pro Ser
 50 55 60
 Thr Arg Leu Gly Asp Arg Pro Ser Gly Thr Phe Ser Val Val Ser His
 65 70 75 80
 Lys Glu Pro Met Leu Ser Ile Ala Asn Ser Tyr Ser Lys Glu Glu Leu
 85 90 95
 Ser Glu Phe Phe Ser Arg Val Glu Lys Ser Leu Gly Thr Ser Pro Arg
 100 105 110
 Tyr Thr Val Glu Leu Lys Ile Asp Gly Ile Ala Val Ala Ile Arg Tyr
 115 120 125
 Glu Asp Arg Val Leu Val Gln Ala Leu Ser Arg Gly Asn Gly Lys Gln
 130 135 140
 Gly Glu Asp Ile Thr Ser Asn Ile Arg Thr Ile Arg Ser Leu Pro Leu
 145 150 155 160
 Arg Leu Pro Glu Asp Ala Pro Glu Phe Ile Glu Val Arg Gly Glu Val
 165 170 175
 Phe Phe Ser Tyr Ser Thr Phe Gln Ile Ile Asn Glu Lys Gln Gln Gln
 180 185 190
 Leu Glu Lys Thr Ile Phe Ala Asn Pro Arg Asn Ala Ala Gly Gly Thr
 195 200 205
 Leu Lys Leu Leu Ser Pro Gln Glu Val Ala Lys Arg Lys Leu Glu Ile
 210 215 220
 Ser Ile Tyr Asn Leu Ile Ala Pro Gly Asp Asn Asp Ser His Tyr Glu
 225 230 235 240
 Asn Leu Gln Arg Cys Leu Glu Trp Gly Phe Pro Val Ser Gly Lys Pro
 245 250 255
 Arg Leu Cys Ser Thr Pro Glu Glu Val Ile Ser Val Leu Lys Thr Ile
 260 265 270
 Glu Thr Glu Arg Ala Ser Leu Pro Met Glu Ile Asp Gly Ala Val Ile
 275 280 285
 Lys Val Asp Ser Leu Ala Ser Gln Arg Val Leu Gly Ala Thr Gly Lys
 290 295 300
 His Tyr Arg Trp Ala Leu Ala Tyr Lys Tyr Ala Pro Glu Glu Ala Glu
 305 310 315 320
 Thr Leu Leu Glu Asp Ile Leu Val Gln Val Gly Arg Thr Gly Val Leu
 325 330 335
 Thr Pro Val Ala Lys Leu Thr Pro Val Leu Leu Ser Gly Ser Leu Val
 340 345 350
 Ser Arg Ala Ser Leu Tyr Asn Glu Asp Glu Ile His Arg Lys Asp Ile
 355 360 365
 Arg Ile Gly Asp Thr Val Cys Val Ala Lys Gly Gly Glu Val Ile Pro
 370 375 380
 Lys Val Val Arg Val Cys Arg Glu Lys Arg Pro Glu Gly Ser Glu Val
 385 390 395 400
 Trp Asn Met Pro Glu Phe Cys Pro Val Cys His Ser His Val Val Arg
 405 410 415
 Glu Glu Asp Arg Val Ser Val Arg Cys Val Asn Pro Glu Cys Val Ala
 420 425 430

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Pro | Lys | Lys | Gly | Phe | Val | Gly | Lys | Leu | Val | Glu | Asn | Leu | Arg | Pro |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Asp | Leu | His | Lys | Asn | Lys | Asp | Asp | Gly | Gly | Ala | Ala | Ala | Asp | Ser | Arg |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Asp | Phe | Ala | Gly | Tyr | Gly | Val | Lys | His | Tyr | Gln | Thr | Asp | Ala | Leu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Gly | Val | Ser | Gly | Val | Asn | Ser | Val | Glu | Trp | Gln | Arg | Leu | Ala | Ser |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Leu | Ile | Met | Ser | Val | Lys | Asn | Asp | Ile | Leu | Asn | Asp | Val | Gly | Ser | Arg |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Glu | Pro | Ile | Asp | Lys | Ala | Gln | Arg | Ser | Ala | Leu | Val | Val | Ser | Gly | Lys |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Asp | Ile | Gly | Gly | Glu | Ile | Gln | Pro | Gly | Gly | Ile | Leu | Asp | Ile | Ser | Arg |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Asp | Ile | Leu | Ala | Ile | Cys | Gly | Tyr | Gly | Met | Asn | Val | Gly | Val | Glu | Ala |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Lys | Lys | Ala | Ile | Asp | Gln | Tyr | Lys | Lys | Trp | Tyr | Leu | Asn | Ser | Ser | Thr |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Phe | Ile | Ala | Trp | Asn | Pro | Gln | Leu | Pro | Ala | Ile | Ala | Gln | Ser | Tyr | Leu |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Leu | Glu | Gln | Gln | Arg | His | Leu | Asp | Tyr | Ala | Ala | Lys | Ile | Phe | Gln | Asp |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Leu | Ser | Ala | Leu | Thr | Thr | Ala | His | Gly | Thr | Gly | Gln | Ala | Leu | Glu | Asp |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Leu | Asp | Ser | Leu | Leu | Cys | Tyr | Tyr | Asp | Gln | Leu | Ile | Glu | Ser | Lys | Gly |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Val | Gly | Glu | Lys | Ile | Ala | Ser | Ile | His | Gln | Lys | His | Leu | Asp | Leu | |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ala | Met | Gln | Asp | Ser | Cys | Asp | Gln | Glu | His | Leu | Lys | Lys | Trp | Ser | Asn |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Leu | Tyr | His | Val | Phe | Ser | Ile | Thr | Ile | Lys | Glu | Phe | Thr | Glu | Gly | Lys |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Leu | Glu | Gln | Asn | Glu | Val | Val | Ser | Arg | Ile | Gln | Arg | Leu | Arg | Gly | Lys |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Leu | Glu | Lys | Ser | Lys | Cys | Ser | Ile | Leu | Gly | Asn | Cys | Arg | Thr | Asn | Ala |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Glu | Tyr | Ala | Thr | Lys | Ser | Glu | Lys | Lys | Leu | Ala | Asp | Tyr | Leu | Leu | Gln |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Ile | Gly | Asp | Arg | Glu | Pro | Phe | Leu | Thr | Gly | Met | His | Lys | Ala | Ile | Ala |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Thr | Gly | Lys | Ala | Ile | Gln | Gly | Lys | Val | Glu | Gly | Val | Ile | Ser | Gln | His |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Pro | Glu | Lys | Gln | Ile | Met | Met | Leu | Arg | Cys | Ser | Ile | Glu | Arg | Leu | Glu |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Gly | Met | Leu | Arg | Arg | Glu | Asp | Trp | Gly | Ala | Ile | Leu | Gln | Lys | Asn | Glu |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Asp | Glu | Val | Leu | Ala | Leu | Lys | Ser | Thr | Met | Glu | Ala | Gln | Leu | Gln | Gly |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Phe | Lys | Asp | Leu | Val | Gly | Thr | Trp | Glu | Gly | Lys | Tyr | Gln | Glu | Phe | Lys |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Lys | Asn | Lys | Leu | Ser | Lys | Val | Leu | Val | Tyr | Asp | Phe | Thr | Lys | Ser | Tyr |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Ser | Asn | Leu | Leu | Asn | Arg | Leu | Glu | Val | Leu | His | Ala | Glu | Ser | Ser | Thr |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Asp | Asp | Leu | Val | Leu | His | Val | Asp | Arg | Met | Ser | Glu | Asp | Leu | Lys | Lys |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Thr | Ile | Glu | Glu | Ile | Asp | Gly | Asn | Leu | Phe | Gln | Val | Thr | Pro | Glu | Glu |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Leu | Ser | Leu | Leu | Ala | Arg | Glu | Tyr | Gln | Gly | Leu | Met | Asn | Glu | Leu | Pro |
| | | | 660 | | | | | 665 | | | | | 670 | | |

Leu Ile Val Gln Glu Gly Asn Arg Leu Gln Glu Ala Ile Ser Ser Glu
 675 680 685
 Gly Val Ser Gln Gly Leu Met Leu Leu Asn Ser Leu Leu Asn Arg Asp
 690 695 700
 Glu Lys Ile Asn Lys Asn Ile Glu Ser Ser Arg Lys Asn Leu Val Ala
 705 710 715 720
 Ile Ala Lys Gln Ala Arg Ser Asp Ala Arg Asn Ile Asp Ser Gln Gly
 725 730 735
 Leu Ala Pro Leu Ile Gln Arg Asn Arg Ala Ser Leu Asp Asn Ile Leu
 740 745 750
 Gln Asn Met Tyr Leu Phe Asn Gly Ser Ile Arg Asn Ile His Ala Leu
 755 760 765
 Asp Thr Glu Thr Leu Val Ala Thr Ser Ser Asn Met Phe Ser Ala Met
 770 775 780
 His Thr Phe Asp Trp Asn Ile Tyr Thr Asn Leu Leu Asp Val Leu Glu
 785 790 795 800
 Ile Gln Ser Lys Pro Ala Pro Ala Pro Met Glu Asn Pro Asp Leu Pro
 805 810 815
 Gly Ala Leu Pro Glu Glu Val Gln Asp Ala Val Ala Glu Asp Val Ser
 820 825 830
 Gly Thr His Arg Leu His His Gln Val Leu Lys Arg Arg Cys Ala Asp
 835 840 845
 Leu Lys Asn Met Ile Ser Gln Leu Gln Lys Ser Ile Asn Lys Trp Gly
 850 855 860
 Met Ala Lys Ala Ile Val Leu Gly Ile Val Ala Val Leu Phe Cys Val
 865 870 875 880
 Leu Ser Ala Ile Phe Ile Gly Gln Asn Ile Leu Ser Leu Leu Ile Leu
 885 890 895
 Ser Cys Val Gly Leu Leu Leu Thr Gln Val Cys Pro Leu Ile Phe Asp
 900 905 910
 Arg Ile Ser Lys Ser Lys Glu Phe Glu Lys Gln Val Leu Glu Thr Ala
 915 920 925
 Gln Ser Leu Ile Pro Ala Thr Lys Ile Leu Pro Ser Glu Phe Asn Asn
 930 935 940
 Lys Asp Leu Asn Arg Leu Ala Lys Leu Gln Asp Asn Leu Asn Leu Glu
 945 950 955 960
 Gly Phe Gly Pro Thr Trp Ala Arg Asn Ile Val Ser Asp Leu Glu Gly
 965 970 975
 Ile Pro Thr Lys Glu Lys Ser Leu Lys Asp Leu Thr Lys Glu Phe Arg
 980 985 990
 Lys Asp Ser Lys Asn Leu Asn Lys Arg Ile Lys Arg Arg Phe Lys Glu
 995 1000 1005
 Gly Leu Gly Gln Glu Ala Pro Val Val Arg Pro Thr Ile Pro Gln Asp
 1010 1015 1020
 Ile Arg Gly Ala Glu Val Phe Ala Glu Leu His Arg Glu Leu Glu His
 1025 1030 1035 1040
 Leu Gln Lys Gln Lys Glu Glu Ile Ser Ile Arg Gly Asp Ala Leu Val
 1045 1050 1055
 Gln Glu Arg Met Gly Leu Cys Leu Glu Lys Ser Lys Tyr Asp Asn Glu
 1060 1065 1070
 Lys Ala His Ala Ala Ala Met Thr Lys Lys Val Gly Lys Leu Gln Asn
 1075 1080 1085
 Ile Asp Arg Leu Gln Lys Asn Asn Glu Thr Tyr Val Arg Ile Gln Asn
 1090 1095 1100
 Phe Phe Arg Thr Leu Ile Gln Glu Lys Leu Gly Arg Asp Thr Val Gln
 1105 1110 1115 1120
 Glu Ile Asp Val Val Lys Glu Ala Lys Glu Leu His Glu Leu Ala Ala
 1125 1130 1135
 Ile Ile Tyr Gly Asn Thr Ser Gly Lys Ser Gln Lys Gln Arg Ala Lys
 1140 1145 1150

Lys Gln Phe Lys Glu Asn Val Leu His Ile Ala Gly Lys Gly Gln Leu
 1155 1160 1165
 Glu Leu Leu Glu Ala Tyr Leu Asn Val Thr Ala Ser Gln Gly Leu Cys
 1170 1175 1180
 Arg His Gln Met Gln Ala Ser Phe Arg Glu Arg Ile Leu Leu Asn Pro
 1185 1190 1195 1200
 Asp Gly Ala Lys His Gly Glu Ala Glu Arg Thr Leu Ala Ser Arg Glu
 1205 1210 1215
 Glu Met Leu Lys Thr Leu Gly Leu Ser Tyr Leu Thr Pro Phe Val Arg
 1220 1225 1230
 Phe Ser Ser Pro Glu Ser Thr Gln Ser Gly Tyr Asn Gln Ile Leu Lys
 1235 1240 1245
 Val Arg Glu Gln Leu Phe Asp Ile Glu Gln Arg Leu Gln Asn Gln Glu
 1250 1255 1260
 Thr Val Ser Pro Glu Asp Tyr Ala Ala Val Gln Ala Ala Leu Ala Ala
 1265 1270 1275 1280
 Tyr Val Arg Lys His Glu Ser Leu Ile Val Ser Thr Tyr Gly Leu Gly
 1285 1290 1295
 Ala Gln Glu Gly Gln Thr Ser Ser Lys Val Thr Thr Leu Met Arg Asp
 1300 1305 1310
 Leu His Ala Val Glu Glu Leu Val Glu Met Gly Val Glu Thr Tyr Arg
 1315 1320 1325
 Leu Asn Arg Ser Asp Gln Ile Leu His Arg Val His Ser Val Leu His
 1330 1335 1340
 Ser His Leu Arg Asp Cys Asp Ser Ser Gly Asn Gly Ile Ile Asp Val
 1345 1350 1355 1360
 Val Lys Lys Leu Phe Glu Leu Leu Asn Asn Asn Gly Asn Asn Pro Asn
 1365 1370 1375
 Asp Pro Glu Cys Gln Lys Tyr Met Gln Ile Leu Leu Asp Ala Pro Val
 1380 1385 1390
 Ser Leu Leu Tyr Gly Ala Phe Lys Ser Phe Lys Asn Glu Phe Leu Leu
 1395 1400 1405
 Asn Phe Thr Glu Leu Asn Ile Ala Asn Ser Thr Lys Ala Ala Glu Glu
 1410 1415 1420
 Glu Ala Lys Arg Tyr Val Glu Glu Lys Gly Arg Gly Phe Glu Thr Tyr
 1425 1430 1435 1440
 Trp Glu Glu Ala Lys Gln Arg Leu Glu Ala Ile Ala Ala Glu Leu Asp
 1445 1450 1455
 Asp Leu Arg Asn Gln Glu Thr Leu Leu Glu Gln Glu Ile Arg Leu Ala
 1460 1465 1470
 Asn Leu Lys Ile Ser Ile Phe Ser Asp Leu Asn Leu Arg Glu Lys Val
 1475 1480 1485
 Ser Val Glu Lys Ala Ala Leu Glu Glu Glu Ile Gln Gly Ile Gln Glu
 1490 1495 1500
 Gln Tyr Ala Glu Met Gln Gly Ile Glu Asp Leu Glu Leu Lys Gln Lys
 1505 1510 1515 1520
 Phe Glu Asp Leu Gln Lys Lys Leu Glu Ala Leu Glu Glu Arg Leu Leu
 1525 1530 1535
 Gln Ile Gly Arg Arg Ile Asp Ser Ser Val Asp Lys Gln Lys Glu Leu
 1540 1545 1550
 Leu Gly Leu Leu Gly Arg Glu Glu Ala Ala
 1555 1560

<210> 153

<211> 518

<212> PRT

<213> Chlamydia pneumoniae

<400> 153

Cys Tyr Glu Asn Leu Phe His Tyr Pro Arg Ala Ser Met Ala Asp Ile

1

5

10

15

Leu Val Ile Gly Ala Asn Pro Thr Gly Leu Ile Leu Ala Asn Met Leu
 20 25 30
 Ile Gln His Gly Ile Ser Val Lys Val Ile Asp His Arg Ala Ser Pro
 35 40 45
 Glu Asp Pro Ser Phe Leu Asp Cys Arg Lys Leu Pro Val Ile Leu Ser
 50 55 60
 Cys Ser Ser Leu Glu Leu Leu His Asn Ser Glu Met Leu Gly Asp Phe
 65 70 75 80
 Ile Gln Ala Asn His Lys Ile Phe Gly Ala Arg Tyr His Trp Lys Lys
 85 90 95
 Arg Thr Leu Leu Phe Lys Phe Ser Gln Ala Thr Asp Ser Pro Val Pro
 100 105 110
 Phe Ser Leu Ser Thr Thr Tyr Gln Ser Leu Glu Gln His Leu Ile Asp
 115 120 125
 Glu Phe Leu Lys Arg Gly Gly Val Ile Asp Trp Ser Thr Arg Pro Val
 130 135 140
 Thr Leu Val Asp Asn Ser Ile Phe Ile Glu Ser Thr Lys Val Ser Gln
 145 150 155 160
 Asn Phe Glu Asn Arg Glu Ile Tyr Asn Pro Lys Trp Ile Ile Ala Cys
 165 170 175
 Glu Ala Asp Asn Asn Leu Asp Ile Arg Asp Leu Val Lys Ser Gln Leu
 180 185 190
 Arg Ala Arg Arg Ile Asn Arg Glu Val Ile Phe Ile Asn Cys Asp Glu
 195 200 205
 Gly Glu Pro Phe Glu Glu Asp His Ile His Leu Leu Pro Ile Thr Lys
 210 215 220
 Asn Phe Leu Asn Phe Val Phe Tyr Asn Pro Gln Glu Lys Thr Lys Gln
 225 230 235 240
 Leu Cys Leu Pro Gln Gly Thr His Ser Ile Ser Pro Lys Leu Lys Gln
 245 250 255
 Lys Leu Leu Tyr Thr Tyr Asn Leu Val Ile Ser Asp Glu Asn Phe His
 260 265 270
 Ile Lys Thr Ser His His Ala Phe Pro Pro Glu His Gly Asn Val Leu
 275 280 285
 Phe Leu Gly Ser Leu Ser Asn Thr Leu Leu Leu Ser Tyr Leu Asn Gly
 290 295 300
 Ile Asn Thr Asn Ile His Ala Ala Phe Asn Leu Ala Trp Lys Leu Leu
 305 310 315 320
 Pro Val Leu Lys Lys Ala Ala Leu Lys His Leu Val Ile Thr Lys Glu
 325 330 335
 Gln Glu Asp Gly Asn Ile Leu Pro Tyr Ile Ser Pro Thr Thr Glu Lys
 340 345 350
 Arg Ala Lys Lys Leu Pro Phe Ser Arg Phe Tyr Thr Pro Ala Leu Met
 355 360 365
 Tyr Tyr Phe Leu Lys Gly Cys Arg Lys Phe Asn Thr Thr Gly Glu Glu
 370 375 380
 Tyr Tyr Tyr Pro Pro His Gln Ala Leu Lys Tyr Arg Ser Ser Asp Ile
 385 390 395 400
 Ile Lys Met Ser Pro Gln Asp Lys Glu Ile His Gly Pro Gly Pro Gly
 405 410 415
 Met Arg Ala Ile Asp Ala Arg Leu Glu Asn Gly Ser Phe Leu Leu Asp
 420 425 430
 Pro Leu Lys Ser Ser Lys His Leu Leu Ile Phe Phe Lys Asp Ile Pro
 435 440 445
 Asp Leu Lys Glu Ala Leu Gln Glu Glu Tyr Gly Glu Trp Ile Glu Ile
 450 455 460
 Cys Asn Val Lys Glu Pro Arg Ile Leu Asn Leu Tyr His Ala Asn Pro
 465 470 475 480
 Asn Ser Leu Phe Ile Ile Arg Pro Asp Arg Tyr Ile Gly Tyr Arg Thr
 485 490 495

His Thr Phe Lys Leu His Glu Leu Ile Ser Tyr Leu Leu Arg Ile Phe
500 505 510
Ala Ser Glu Lys Thr Ser
515

<210> 154
<211> 319
<212> PRT
<213> Chlamydia pneumoniae

<400> 154
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Val Ala Ile Gly Ala Ser Ala Ala Pro Val Arg Val Pro Gly Phe Pro
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Gln Ile Pro Glu Asp Leu Val Gln Ile Lys Thr Glu Val Cys Pro Lys
35 40 45
Gln Glu Val Cys Leu Ala Val Thr Ile Lys Cys Asp Asp His Asn Leu
50 55 60
Ile Gly Val Leu His Leu Pro Asn Thr Pro Thr Pro Glu Gly Gly Phe
65 70 75 80
Pro Thr Val Val Leu Phe His Gly Phe Arg Gly Thr Lys Phe Gly Gly
85 90 95
Leu Thr Gly Ala Tyr Arg Lys Leu Gly Arg Lys Phe Ala Ala Val Gly
100 105 110
Ile Ala Thr Leu Arg Val Asp Met Ala Gly Cys Gly Asp Ser Glu Gly
115 120 125
Val Ala Glu Glu Val Pro Ile Glu Thr Tyr Leu Arg Asp Ala Gln Thr
130 135 140
Ile Leu Glu Thr Val Gln Glu His Pro Asp Leu Asn Ala Tyr Arg Leu
145 150 155 160
Gly Ile Ser Gly Phe Ser Leu Gly Cys His Ile Ala Phe Glu Leu Ala
165 170 175
Lys Ile Tyr Asn Pro Arg Asp Leu Asn Ile Lys Ala Leu Ser Val Trp
180 185 190
Ala Pro Ile Ala Asp Gly Gly Ile Leu Leu Lys Glu Leu Tyr Glu Asn
195 200 205
Phe Ser Lys His Gly Glu Gly Asp Ile Ile Ser Val Gly Lys Asp Phe
210 215 220
Gly Phe Gly Pro Pro Pro Ile Ile Val Cys Ser Gly Asp Val Asp Leu
225 230 235 240
Leu Ile Arg Ile Gln Asp His Val Thr Ala Asn Ser Leu Pro Thr Lys
245 250 255
Pro Tyr Ile Leu His Gln Gln Gly Ile Asp Asp Thr Leu Val Ser Arg
260 265 270
Thr Gln Gln Thr Leu Phe Lys Asn Thr Ala Pro Gly Arg Met Thr Phe
275 280 285
Ile Ser Tyr Pro Asn Thr Gly His Asn Leu Ala Thr Ala Pro Asp Leu
290 295 300
Asp Met Ile Leu Asp Gln Ile Val Ser His Phe Gln Arg Thr Leu
305 310 315

<210> 155
<211> 821
<212> PRT
<213> Chlamydia pneumoniae

<400> 155
Asn Met Arg Tyr Asp Pro Asn Leu Ile Glu Lys Lys Trp Gln Gln Phe
1 5 10 15

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Trp | Lys | Glu | His | Arg | Ser | Phe | Gln | Ala | Asn | Glu | Asp | Glu | Asp | Lys | Val | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Lys | Tyr | Tyr | Val | Leu | Asp | Met | Phe | Pro | Tyr | Pro | Ser | Gly | Ala | Gly | Leu | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| His | Val | Gly | His | Leu | Ile | Gly | Tyr | Thr | Ala | Thr | Asp | Ile | Val | Ala | Arg | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Tyr | Lys | Arg | Ala | Arg | Gly | Phe | Ser | Val | Leu | His | Pro | Met | Gly | Trp | Asp | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Ser | Phe | Gly | Leu | Pro | Ala | Glu | Gln | Tyr | Ala | Ile | Arg | Thr | Gly | Thr | His | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Pro | Lys | Val | Thr | Gln | Lys | Asn | Ile | Ala | Asn | Phe | Lys | Lys | Gln | Leu | | |
| | | | 100 | | | | 105 | | | | | 110 | | | | |
| Ser | Ala | Met | Gly | Phe | Ser | Tyr | Asp | Glu | Gly | Arg | Glu | Phe | Ala | Thr | Ser | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Asp | Pro | Asp | Tyr | Tyr | His | Trp | Thr | Gln | Lys | Leu | Phe | Leu | Phe | Leu | Tyr | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Asp | Gln | Gly | Leu | Ala | Tyr | Met | Ala | Asp | Met | Ala | Val | Asn | Tyr | Cys | Pro | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Glu | Leu | Gly | Thr | Val | Leu | Ser | Asn | Glu | Glu | Val | Glu | Asn | Gly | Phe | Ser | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Ile | Glu | Gly | Gly | Tyr | Pro | Val | Glu | Arg | Lys | Met | Leu | Arg | Gln | Trp | Ile | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Leu | Lys | Ile | Thr | Ala | Tyr | Ala | Asp | Lys | Leu | Leu | Glu | Gly | Leu | Asp | Ala | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Leu | Asp | Trp | Pro | Glu | Asn | Val | Lys | Gln | Leu | Gln | Lys | Asn | Trp | Ile | Gly | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Lys | Ser | Glu | Gly | Ala | Leu | Val | Thr | Phe | His | Leu | Thr | Gln | Glu | Gly | Ser | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Leu | Glu | Ala | Phe | Thr | Arg | Leu | Asp | Thr | Leu | Leu | Gly | Val | Ser | Phe | | |
| | | | | 245 | | | | 250 | | | | | 255 | | | |
| Leu | Val | Ile | Ala | Pro | Glu | His | Pro | Asp | Leu | Asp | Ser | Ile | Val | Ser | Glu | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Glu | Gln | Arg | Asp | Glu | Val | Thr | Ala | Tyr | Val | Gln | Glu | Ser | Leu | Arg | Lys | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Ser | Glu | Arg | Asp | Arg | Ile | Ser | Ser | Val | Lys | Thr | Lys | Thr | Gly | Val | Phe | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Thr | Gly | Asn | Tyr | Ala | Lys | His | Pro | Ile | Thr | Gly | Asn | Leu | Leu | Pro | Val | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Trp | Ile | Ser | Asp | Tyr | Val | Val | Leu | Gly | Tyr | Gly | Thr | Gly | Val | Val | Met | |
| | | | 325 | | | | | 330 | | | | | 335 | | | |
| Gly | Val | Pro | Ala | His | Asp | Glu | Arg | Asp | Arg | Glu | Phe | Ala | Glu | Met | Phe | |
| | | | 340 | | | | | 345 | | | | 350 | | | | |
| Ser | Leu | Pro | Ile | His | Glu | Val | Ile | Asp | Asp | Asn | Gly | Val | Cys | Ile | His | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| Ser | Asn | Tyr | Asn | Asp | Phe | Cys | Leu | Asn | Gly | Leu | Ser | Gly | Gln | Glu | Ala | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Lys | Asp | Tyr | Val | Ile | Asn | Tyr | Leu | Glu | Met | Arg | Ser | Leu | Gly | Arg | Ala | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| Lys | Thr | Met | Tyr | Arg | Leu | Arg | Asp | Trp | Leu | Phe | Ser | Arg | Gln | Arg | Tyr | |
| | | | 405 | | | | | | 410 | | | | | 415 | | |
| Trp | Gly | Glu | Pro | Ile | Pro | Ile | Ile | His | Phe | Glu | Asp | Gly | Thr | His | Arg | |
| | | | 420 | | | | | 425 | | | | | 430 | | | |
| Pro | Leu | Glu | Asp | Asp | Glu | Leu | Pro | Leu | Leu | Pro | Pro | Asn | Ile | Asp | Asp | |
| | | 435 | | | | | 440 | | | | | 445 | | | | |
| Tyr | Arg | Pro | Glu | Gly | Phe | Gly | Gln | Gly | Pro | Leu | Ala | Lys | Ala | Gln | Asp | |
| | 450 | | | | | 455 | | | | | 460 | | | | | |
| Trp | Val | His | Ile | Tyr | Asp | Glu | Lys | Thr | Gly | Arg | Pro | Gly | Cys | Arg | Glu | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | |
| Thr | Tyr | Thr | Met | Pro | Gln | Trp | Ala | Gly | Ser | Cys | Trp | Tyr | Tyr | Leu | Arg | |
| | | | 485 | | | | | | 490 | | | | | 495 | | |

Phe Cys Asp Ala His Asn Ser Gln Leu Pro Trp Ser Lys Glu Lys Glu
 500 505 510
 Ser Tyr Trp Met Pro Val Asp Leu Tyr Ile Gly Gly Ala Glu His Ala
 515 520 525
 Val Leu His Leu Leu Tyr Ser Arg Phe Trp His Arg Val Phe Tyr Asp
 530 535 540
 Ala Gly Leu Val Ser Thr Pro Glu Pro Phe Lys Lys Leu Ile Asn Gln
 545 550 555 560
 Gly Leu Val Leu Ala Ser Ser Tyr Arg Ile Pro Gly Lys Gly Tyr Val
 565 570 575
 Ser Ile Glu Asp Val Arg Glu Glu Asn Gly Thr Trp Ile Ser Thr Cys
 580 585 590
 Gly Glu Ile Val Glu Val Arg Gln Glu Lys Met Ser Lys Ser Lys Leu
 595 600 605
 Asn Gly Val Asp Pro Gln Val Leu Ile Glu Glu Tyr Gly Ala Asp Ala
 610 615 620
 Leu Arg Met Tyr Ala Met Phe Ser Gly Pro Leu Asp Lys Asn Lys Thr
 625 630 635 640
 Trp Ser Asn Glu Gly Val Gly Gly Cys Arg Arg Phe Leu Asn Arg Phe
 645 650 655
 Tyr Asp Leu Val Thr Ser Ser Glu Val Gln Asp Ile Glu Asp Arg Asp
 660 665 670
 Gly Leu Val Leu Ala His Lys Leu Val Phe Arg Ile Thr Glu His Ile
 675 680 685
 Glu Lys Met Ser Leu Asn Thr Ile Pro Ser Ser Phe Met Glu Phe Leu
 690 695 700
 Asn Asp Phe Ser Lys Leu Pro Val Tyr Ser Lys Arg Ala Leu Ser Met
 705 710 715 720
 Ala Val Arg Val Leu Glu Pro Ile Ala Pro His Ile Ser Glu Glu Leu
 725 730 735
 Trp Val Ile Leu Gly Asn Pro Pro Gly Ile Asp Gln Ala Ala Trp Pro
 740 745 750
 Gln Ile Asp Glu Ser Tyr Leu Val Ala Gln Thr Val Thr Phe Val Val
 755 760 765
 Gln Val Asn Gly Lys Leu Arg Gly Arg Leu Glu Val Ala Lys Glu Ala
 770 775 780
 Pro Lys Glu Glu Val Leu Ser Leu Ser Arg Ser Val Val Ala Lys Tyr
 785 790 795 800
 Leu Glu Asn Ala Gln Ile Arg Lys Glu Ile Tyr Val Pro Asn Lys Leu
 805 810 815
 Val Asn Phe Val Leu
 820

<210> 156

<211> 443

<212> PRT

<213> Chlamydia pneumoniae

<400> 156

Thr Ser Glu Phe Cys Pro Met Met Leu Arg Gly Val His Arg Ile Phe
 1 5 10 15
 Lys Cys Phe Tyr Asp Val Val Leu Val Cys Ala Phe Val Ile Ala Leu
 20 25 30
 Pro Lys Leu Leu Tyr Lys Met Leu Val Tyr Gly Lys Tyr Lys Lys Ser
 35 40 45
 Leu Ala Val Arg Phe Gly Leu Lys Lys Pro His Val Pro Gly Glu Gly
 50 55 60
 Pro Leu Val Trp Phe His Gly Ala Ser Val Gly Glu Val Arg Leu Leu
 65 70 75 80
 Leu Pro Val Leu Glu Lys Phe Cys Glu Glu Phe Pro Gly Trp Arg Cys
 85 90 95

Leu Val Thr Ser Cys Thr Glu Leu Gly Val Gln Val Ala Ser Gln Val
 100 105 110
 Phe Ile Pro Met Gly Ala Thr Val Ser Ile Leu Pro Leu Asp Phe Ser
 115 120 125
 Ile Ile Ile Lys Ser Val Val Ala Lys Leu Arg Pro Ser Leu Val Val
 130 135 140
 Phe Ser Glu Gly Asp Cys Trp Leu Asn Phe Ile Glu Glu Ala Lys Arg
 145 150 155 160
 Ile Gly Ala Thr Thr Leu Val Ile Asn Gly Arg Ile Ser Ile Asp Ser
 165 170 175
 Ser Lys Arg Phe Lys Phe Leu Lys Arg Leu Gly Lys Asn Tyr Phe Ser
 180 185 190
 Pro Val Asp Gly Phe Leu Leu Gln Asp Glu Val Gln Lys Gln Arg Phe
 195 200 205
 Leu Ser Leu Gly Ile Pro Glu His Lys Leu Gln Val Thr Gly Asn Ile
 210 215 220
 Lys Thr Tyr Val Ala Ala Gln Thr Ala Leu His Leu Glu Arg Glu Thr
 225 230 235 240
 Trp Arg Asp Arg Leu Arg Leu Pro Thr Asp Ser Lys Leu Val Ile Leu
 245 250 255
 Gly Ser Met His Arg Ser Asp Ala Gly Lys Trp Leu Pro Val Val Gln
 260 265 270
 Lys Leu Ile Lys Glu Gly Val Ser Val Leu Trp Val Pro Arg His Val
 275 280 285
 Glu Lys Thr Lys Asp Val Glu Glu Ser Leu His Arg Leu His Ile Pro
 290 295 300
 Tyr Gly Leu Trp Ser Arg Gly Ala Asn Phe Ser Tyr Val Pro Val Val
 305 310 315 320
 Val Val Asp Glu Ile Gly Leu Leu Lys Gln Leu Tyr Val Ala Gly Asp
 325 330 335
 Leu Ala Phe Val Gly Gly Thr Phe Asp Pro Lys Ile Gly Gly His Asn
 340 345 350
 Leu Leu Glu Pro Leu Gln Cys Glu Val Pro Leu Ile Phe Gly Pro His
 355 360 365
 Ile Thr Ser Gln Ser Glu Leu Ala Gln Arg Leu Leu Leu Ser Gly Ala
 370 375 380
 Gly Leu Cys Leu Asp Glu Ile Glu Pro Ile Ile Asp Thr Val Ser Phe
 385 390 395 400
 Leu Leu Asn Asn Gln Glu Val Arg Glu Ala Tyr Val Gln Lys Gly Lys
 405 410 415
 Val Phe Val Lys Ala Glu Thr Ala Ser Phe Asp Arg Thr Trp Arg Ala
 420 425 430
 Leu Lys Ser Tyr Ile Pro Leu Tyr Lys Asn Ser
 435 440

<210> 157

<211> 70

<212> PRT

<213> Chlamydia pneumoniae

<400> 157

Asn Ser Leu Ser Phe Gly Val Pro Phe Leu Glu Lys Leu Lys Ile Ser
 1 5 10 15
 Leu Ile Pro Ile Glu Glu Met Arg His Glu Leu Phe Met Lys Thr His
 20 25 30
 Asn Ser Ser Ser Asn Gly Phe Ser Asn Gln Glu Lys Gly Ile Arg Thr
 35 40 45
 Tyr Phe Lys Ser Asp Leu Leu Gly Tyr Glu Asp Leu Tyr Phe Leu Arg
 50 55 60
 Glu Asn Ile Asn Pro Asn
 65 70

<210> 158
 <211> 126
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 158
 Leu Gly Lys Gln Lys Leu Leu Ala Arg His Met Met His Asn Ile Val
 1 5 10 15
 Val Leu Ser Glu Pro Gly Arg Ser Ala Phe Leu Gly Arg Thr Ala
 20 25 30
 Phe Phe Pro Asn Lys Tyr Pro Ile Ala Gln Gly Gly Val Gly Ile Pro
 35 40 45
 Ser Thr Ile Gly Asn Leu Phe Thr Ile Trp Tyr Cys Phe Tyr Phe Tyr
 50 55 60
 Arg Ala Ala Thr Pro Gln Ser Asp His Pro Asp Gly Cys Gly Phe Ile
 65 70 75 80
 Leu Leu Glu Arg Leu Lys Glu Leu Gly Ala Gly Phe Phe Tyr Cys Asp
 85 90 95
 Leu Arg Glu Ser Asn Thr Thr Gly Phe Thr Leu Phe Phe Glu Gly Ser
 100 105 110
 Asn Lys Gly Val Leu Lys Asn His Leu Phe Ile Arg Asp Glu
 115 120 125

<210> 159
 <211> 152
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 159
 Phe Ser Phe Val Thr Tyr Lys Glu Ala Leu Met Asn Ile Tyr Gln Phe
 1 5 10 15
 Ser Pro Gly Ala Ser Pro Asn Trp Gln Ala Ser Leu Met Ala Gln Leu
 20 25 30
 Asn Ser Tyr Phe Cys Leu Gly Gly Glu Thr Val Thr Arg Ile Ile Ser
 35 40 45
 Leu Arg Pro Ser Gly Leu Ile Leu Ala Lys Lys Glu Lys Ala Val Val
 50 55 60
 Ser Thr Ala Glu Lys Ile Leu Lys Ile Leu Ser Phe Ile Leu Phe Pro
 65 70 75 80
 Leu Val Leu Ile Ala Leu Ala Ile Arg Tyr Leu Leu Tyr Asn Lys Phe
 85 90 95
 Asn Lys Asp Leu Asp Arg Ala Val Phe Phe Ile Pro Thr Glu Ile Thr
 100 105 110
 Lys Ala Glu Glu Leu Ile Ile Ala Lys Asn Pro Ala Leu Val Lys Glu
 115 120 125
 Ala Ala Leu Thr Val Ser Pro Leu Phe Tyr Ser Leu Pro Lys Lys Tyr
 130 135 140
 Gln Leu Met Lys Val Glu Thr Pro
 145 150

<210> 160
 <211> 190
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 160
 Pro Pro Lys Ile Thr Leu Ser Ile Asn Ile Asp Leu Leu Leu Glu Asp
 1 5 10 15
 Leu Asp Thr Asp Ser Ile Pro Trp Pro Lys Leu Tyr Leu Ser Glu Asp
 20 25 30

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Asp | Phe | Ala | Tyr | Tyr | Pro | Glu | Ser | Lys | Ala | Ile | Ile | Asp | Thr | Val |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Ala | Lys | Leu | Glu | Lys | Asn | Asn | Pro | Gly | Glu | Glu | Phe | Cys | Leu | Glu | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Lys | Lys | Ile | Leu | Ala | Arg | Tyr | Leu | Leu | Glu | Gln | Leu | Phe | Lys | Leu | Glu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Thr | Gly | Leu | Asn | Phe | Pro | Thr | Ser | Thr | Ile | Asp | Gly | Gly | Arg | Glu | Ser |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Phe | Leu | Ile | Glu | Phe | Ser | His | Glu | Thr | Lys | Lys | Pro | Thr | Val | Trp | Ala |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Phe | Ile | Tyr | Phe | Tyr | Tyr | Tyr | His | Ser | Asn | Gly | Pro | Lys | Leu | Glu | Lys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Asp | Phe | Lys | Gln | Ala | Gly | Cys | Glu | Val | His | Asn | Arg | Leu | Leu | Asn | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gly | Leu | Lys | Tyr | Arg | Pro | Gln | Ala | Gly | Ala | Gln | Asn | Asp | Gly | Arg | Asn |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gly | Gly | Pro | Tyr | Gly | Pro | Ile | Gly | Phe | Leu | Ile | Val | Trp | Glu | Glu | Asn |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Tyr | Gly | Ser | Val | Leu | Lys | Asp | His | Gly | Phe | Ile | Lys | Asp | Asn | | |
| | | | 180 | | | | | 185 | | | | | 190 | | |

<210> 161

<211> 115

<212> PRT

<213> Chlamydia pneumoniae

<400> 161

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Cys | Phe | Gly | Gly | Glu | Thr | Ala | Thr | Arg | Ile | Phe | Ser | Met | Thr | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Gly | Phe | Ser | Leu | Ala | Thr | Glu | Glu | Lys | Val | Gln | Val | Ser | Thr | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Lys | Val | Ile | Lys | Ile | Leu | Ala | Leu | Ile | Phe | Phe | Pro | Ile | Ile | Leu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ile | Ala | Leu | Ala | Ile | Arg | Tyr | Phe | Leu | His | Arg | Lys | Phe | Asp | Arg | Lys |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Cys | Phe | Val | Ile | Pro | Gln | Asp | Thr | Pro | Lys | Glu | Leu | Glu | Leu | Ile | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ala | Ala | Asn | Pro | Gln | Leu | Val | Glu | Lys | Ala | Ala | Arg | Glu | Val | His | Pro |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Gly | Phe | Phe | Ala | Leu | Pro | Thr | Lys | Tyr | Gln | Ser | Met | Tyr | Ile | Gln | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Lys | Gly | | | | | | | | | | | | | |
| | | 115 | | | | | | | | | | | | | |

<210> 162

<211> 556

<212> PRT

<213> Chlamydia pneumoniae

<400> 162

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Val | Glu | Leu | Leu | Ser | Leu | Asn | Lys | Ser | Tyr | Phe | Glu | Ile | Gln | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Arg | Tyr | Arg | Pro | Glu | Ile | Leu | Thr | Leu | Leu | Glu | Thr | Ile | Arg | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Lys | His | Ile | Gln | Glu | Thr | Ser | Ser | Pro | Pro | Ser | Pro | Pro | Pro | Glu | Leu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gln | Lys | His | Ile | Pro | Asn | Leu | Cys | Arg | Ile | Pro | Glu | Val | Ser | Ile | Tyr |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Thr | Glu | Gln | Glu | Thr | Ser | Ser | Lys | Pro | Leu | Lys | Ile | Gly | Val | Leu | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Ser | Gly | Gly | Gln | Ala | Pro | Gly | Gly | His | Asn | Val | Val | Ile | Gly | Leu | Phe | | |
| | | | | 85 | | | | | 90 | | | | | 95 | | | |
| Asp | Ala | Leu | Arg | Val | Phe | Asn | Pro | Lys | Thr | Arg | Leu | Phe | Gly | Phe | Ile | | |
| | | | 100 | | | | | 105 | | | | | 110 | | | | |
| Lys | Gly | Pro | Leu | Gly | Leu | Thr | Arg | Gly | Leu | Tyr | Lys | Asp | Leu | Asp | Ile | | |
| | | 115 | | | | | 120 | | | | | 125 | | | | | |
| Ser | Val | Ile | Tyr | Asp | Tyr | Tyr | Asn | Met | Gly | Gly | Phe | Asp | Met | Leu | Ser | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | |
| Ser | Ser | Arg | Glu | Lys | Ile | Lys | Thr | Glu | Glu | Gln | Lys | Lys | Asn | Ile | Leu | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |
| Asn | Thr | Val | Lys | Gln | Leu | Lys | Leu | Asp | Gly | Leu | Leu | Ile | Ile | Gly | Gly | | |
| | | | | 165 | | | | | 170 | | | | | | 175 | | |
| Asn | Asn | Ser | Asn | Thr | Asp | Thr | Ala | Met | Leu | Ala | Glu | Tyr | Phe | Leu | Ala | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| His | Asn | Cys | Lys | Thr | Ser | Val | Ile | Gly | Val | Pro | Lys | Thr | Ile | Asp | Gly | | |
| | 195 | | | | | 200 | | | | | | 205 | | | | | |
| Asp | Leu | Lys | Asn | Cys | Trp | Ile | Glu | Thr | Ser | Leu | Gly | Phe | His | Thr | Ser | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| Cys | Arg | Thr | Tyr | Ser | Glu | Met | Ile | Gly | Asn | Leu | Ala | Lys | Asp | Ala | Leu | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| Ser | Ala | Lys | Lys | Tyr | His | His | Phe | Ile | Arg | Leu | Met | Gly | Gln | Gln | Ala | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |
| Ser | Tyr | Thr | Thr | Leu | Glu | Cys | Gly | Leu | Gln | Thr | Leu | Pro | Asn | Ile | Ala | | |
| | | 260 | | | | | 265 | | | | | | 270 | | | | |
| Leu | Ile | Ser | Glu | Leu | Ile | Ala | Thr | Arg | Lys | Ile | Ser | Leu | Lys | Gln | Leu | | |
| | 275 | | | | | | 280 | | | | | | 285 | | | | |
| Ser | Glu | Gln | Leu | Ala | Leu | Gly | Leu | Val | Arg | Arg | Tyr | Lys | Ser | Gly | Lys | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| Asn | Tyr | Ser | Thr | Val | Leu | Ile | Pro | Glu | Gly | Leu | Ile | Glu | His | Ile | Phe | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | |
| Asp | Thr | Arg | Lys | Leu | Ile | Asp | Glu | Leu | Asn | Val | Leu | Leu | Ala | Asn | Gly | | |
| | | | | 325 | | | | | 330 | | | | | 335 | | | |
| Asp | Ser | Ser | Ile | Glu | Lys | Ile | Leu | Ser | Lys | Leu | Ser | Pro | Glu | Thr | Leu | | |
| | | 340 | | | | | 345 | | | | | | 350 | | | | |
| Lys | Thr | Phe | His | Leu | Phe | Pro | Lys | Asp | Ile | Ala | Asn | Gln | Leu | Leu | Leu | | |
| | 355 | | | | | | 360 | | | | | 365 | | | | | |
| Ala | Arg | Asp | Ser | His | Gly | Asn | Val | Arg | Val | Ser | Lys | Ile | Ala | Thr | Glu | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | |
| Glu | Leu | Leu | Ala | Val | Met | Val | Lys | Lys | Glu | Ile | Glu | Lys | Ile | Lys | Pro | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | |
| His | Met | Glu | Phe | His | Ser | Val | Ser | His | Phe | Phe | Gly | Tyr | Glu | Ala | Arg | | |
| | | | | 405 | | | | | 410 | | | | | 415 | | | |
| Ala | Gly | Phe | Pro | Ser | Asn | Phe | Asp | Cys | Asn | Tyr | Gly | Ile | Ala | Leu | Gly | | |
| | | | 420 | | | | 425 | | | | | | 430 | | | | |
| Ile | Ile | Ser | Ala | Leu | Phe | Leu | Val | Arg | Gln | Lys | Thr | Gly | Tyr | Met | Ile | | |
| | 435 | | | | | | 440 | | | | | | 445 | | | | |
| Thr | Ile | Asn | Asn | Leu | Ala | Gln | Ser | Tyr | Thr | Glu | Trp | Gln | Gly | Gly | Ala | | |
| | 450 | | | | | 455 | | | | | | 460 | | | | | |
| Thr | Pro | Leu | Tyr | Lys | Met | Met | His | Leu | Glu | Asn | Arg | Cys | Gly | Thr | Glu | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | |
| Thr | Pro | Val | Ile | Lys | Thr | Asp | Ser | Val | Asp | Pro | Lys | Ser | Pro | Ala | Val | | |
| | | | | 485 | | | | | 490 | | | | | 495 | | | |
| Gln | His | Leu | Leu | Gln | Gln | Ser | Asp | Ser | Cys | Leu | Val | Glu | Asp | Leu | Tyr | | |
| | | 500 | | | | | 505 | | | | | | 510 | | | | |
| Arg | Phe | Pro | Gly | Pro | Leu | Gln | Tyr | Phe | Gly | Lys | Glu | Glu | Leu | Ile | Asp | | |
| | 515 | | | | | | 520 | | | | | 525 | | | | | |
| Gln | Arg | Pro | Leu | Thr | Leu | Leu | Trp | Glu | Asn | Gln | Thr | His | Ser | Pro | Phe | | |
| | 530 | | | | | 535 | | | | | 540 | | | | | | |
| Gln | Ala | Leu | Tyr | Ser | Thr | Ser | Gly | Lys | Arg | Ser | Leu | | | | | | |
| 545 | | | | | 550 | | | | | 555 | | | | | | | |

<210> 163
 <211> 287
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 163
 His Arg Ser Ser Thr Ser Arg Lys Gln Glu Pro Leu Leu Ile Thr Gly
 1 5 10 15
 Val Val Leu Glu Lys His Glu Gln Arg Thr Met Phe Ser Leu Thr Leu
 20 25 30
 Leu Asn Asn Phe Thr Thr Phe Gly Leu Leu His Thr Pro Leu His Tyr
 35 40 45
 Asn Pro Pro Tyr Pro Ile Val Ile Leu Leu His Gly Leu Ala Ser Asp
 50 55 60
 Lys Thr Gly Ser Lys Arg Ser His Val Arg Leu Ala Gln Glu Leu Thr
 65 70 75 80
 Arg Leu Gly Ile Ala Ala Leu Arg Val Asp Leu Leu Gly His Gly Asp
 85 90 95
 Cys Glu Gly Glu Leu Met Asp Phe Ser Leu Glu Asn Tyr Lys Gln Asn
 100 105 110
 Ile Arg Glu Ile Ile Glu Tyr Thr His Ser Leu Leu His Ile Asp Gln
 115 120 125
 Glu Arg Leu Ala Ile Phe Gly Ser Ser Leu Gly Gly Thr Leu Ala Leu
 130 135 140
 Gln Thr Leu Pro Phe Phe Asn Lys Ile Lys Ala Leu Ala Val Trp Ala
 145 150 155 160
 Pro Thr Ile Ser Gly Glu Leu Met Ala Ala Glu Ala Gln Lys Asn Ala
 165 170 175
 Pro Glu Val Ile Thr Met Ser Gln Lys Gly Ala Ile Thr Tyr Ala Gly
 180 185 190
 Met Thr Leu Asn Pro Asp Phe Tyr Thr Gln Phe Leu Lys Ile Asp Ile
 195 200 205
 Val Lys Glu Leu Met Pro Ser Ala Arg Asn Leu Pro Pro Ile Leu Tyr
 210 215 220
 Met Gln Gly Glu Gln Asp Leu Leu Val Ser Ile Asn His Arg Thr Leu
 225 230 235 240
 Phe Thr Glu Ala Phe Ala Asn Gln Asp Lys Pro Ile Thr Ile Leu Thr
 245 250 255
 Tyr Pro Asp Val Asp His Ala Phe Pro Phe Ala Glu Ser Ser Ala Leu
 260 265 270
 Ser Asp Leu Thr Gln Trp Leu Lys Arg Glu Leu Thr Ser Gly Glu
 275 280 285

<210> 164
 <211> 356
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 164
 Phe Val Tyr Thr Leu Tyr Asn Ile Gln Ser Pro Phe Arg Ile Met Lys
 1 5 10 15
 Leu Tyr Ser Ile Ser Ser Asp Val Asp Thr Pro Trp Ile Phe Gln Leu
 20 25 30
 Met Ser Lys Val Asp Ser Tyr Leu Phe Leu Gly Gly Asn Arg Ile Lys
 35 40 45
 Val Val Ser Ile Val Met Gln Glu Pro Asn Leu Ile Ile Gly Lys Val
 50 55 60
 Glu Asn Val Arg Ile Ser Thr Ile Val Lys Ile Leu Lys Ile Leu Ser
 65 70 75 80
 Phe Leu Ile Phe Pro Leu Ile Leu Ile Ala Leu Ala Leu His Tyr Phe
 85 90 95

Val Gln Ala Val Ile Ser Phe Leu Lys Asp His Gly Phe Ala Leu Pro
165 170 175
Ser Thr Leu Ala Gln Asp Pro Leu Leu Cys Thr Asn Lys
180 185

<210> 166

<211> 185

<212> PRT

<213> Chlamydia pneumoniae

<400> 166

Leu Cys Phe Lys Cys Ile Tyr Ile Lys Ile Ile Phe Ser Phe Leu Lys
1 5 10 15
Gln Leu Met Thr Arg Ser Thr Ile Glu Ser Ser Asp Ser Leu Cys Ser
20 25 30
Arg Ser Phe Ser Gln Lys Leu Ser Val Gln Thr Leu Lys Asn Leu Cys
35 40 45
Glu Ser Arg Leu Met Lys Ile Thr Ser Leu Val Ile Ala Phe Leu Thr
50 55 60
Leu Ile Val Gly Gly Ala Leu Ile Ala Leu Ala Gly Gly Gly Val Leu
65 70 75 80
Ser Phe Pro Leu Gly Leu Ile Leu Gly Ser Val Leu Val Leu Phe Ser
85 90 95
Ser Ile Tyr Leu Val Ser Cys Cys Lys Phe Phe Thr Leu Lys Glu Met
100 105 110
Thr Met Thr Cys Ser Val Lys Ser Lys Ile Asn Ile Trp Phe Glu Lys
115 120 125
Gln Arg Asn Lys Asp Ile Glu Lys Ala Leu Glu Asn Pro Asp Leu Phe
130 135 140
Gly Glu Asn Lys Arg Asn Val Gly Asn Arg Ser Ala Arg Asn Gln Leu
145 150 155 160
Glu Met Ile Leu His Glu Thr Asp Gly Ile Ile Leu Lys Arg Tyr Met
165 170 175
Lys Gly Ala Lys Met Tyr Phe Tyr Leu
180 185

<210> 167

<211> 200

<212> PRT

<213> Chlamydia pneumoniae

<400> 167

Asn Val Leu Leu Phe Met Asn Trp Val Pro Lys Thr Ile Asp His Val
1 5 10 15
Asp Pro Glu Ser Glu Ile Asp Ile Arg Lys Val Val Ser Cys Tyr Lys
20 25 30
Leu Ile Lys Glu Cys Gln Pro Glu Phe Arg Ser Leu Ile Ser Glu Leu
35 40 45
Leu Gly Val Ile Arg Cys Gly Leu Arg Leu Leu Lys Arg Ser Lys Tyr
50 55 60
Gln Glu Gln Ala Arg Thr Val Ser Asp Glu Asp Ala Pro Leu Phe Cys
65 70 75 80
Leu Thr Arg Ser Tyr Tyr Gln Asp Gly Tyr Leu Thr Pro Leu Arg Ala
85 90 95
Gly Pro Arg Asp Leu Ile Asn His Tyr Ile His Leu Arg Arg Arg Glu
100 105 110
Asn Pro Lys His Phe Phe Ser Pro Lys His Pro Cys Tyr Tyr Ala Arg
115 120 125
Leu Ala Phe Asn Glu Ser Val Cys Val Tyr Arg Glu Leu Phe Asp Ile
130 135 140

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Arg | Leu | Thr | Lys | Met | Tyr | Val | Glu | Gly | Asp | Tyr | Ser | Lys | Glu | Gln |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Glu | Lys | Asn | Leu | Gln | Ala | Ile | Leu | Ser | Phe | Val | Lys | Thr | Leu | Asp | Glu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Gly | Lys | Asp | Phe | Leu | Ile | Glu | His | Lys | Asp | Thr | Asp | Leu | Ile | Gly | Arg |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Gly | Phe | Thr | Asp | Val | Phe | Cys | Thr | | | | | | | | |
| | | 195 | | | | | 200 | | | | | | | | |

<210> 168
 <211> 123
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 168

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Cys | Leu | Lys | Gln | Tyr | Asn | Lys | Ser | Asp | Ser | Ile | Met | Ser | Glu | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Asn | Arg | Ser | Ile | His | Leu | Glu | Ala | Ser | Thr | Pro | Phe | Phe | Ile | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Thr | Asn | Leu | Cys | Glu | Ser | Arg | Leu | Val | Lys | Ile | Thr | Ser | Leu | Val |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ile | Ser | Leu | Leu | Ala | Leu | Val | Gly | Ala | Gly | Val | Thr | Leu | Val | Val | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Phe | Val | Ala | Gly | Ile | Leu | Pro | Leu | Leu | Pro | Val | Leu | Ile | Leu | Glu | Ile |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ile | Leu | Ile | Thr | Val | Leu | Val | Leu | Leu | Phe | Cys | Leu | Val | Leu | Glu | Pro |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Tyr | Leu | Ile | Glu | Lys | Pro | Ser | Lys | Ile | Lys | Glu | Leu | Pro | Lys | Val | Asp |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Glu | Leu | Ser | Val | Val | Glu | Thr | Asp | Ser | Thr | Leu | | | | | |
| | | 115 | | | | | 120 | | | | | | | | |

<210> 169
 <211> 111
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 169

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Leu | Trp | Ser | His | Phe | Pro | Arg | Gly | Phe | Phe | Met | Leu | Pro | Phe | Cys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Pro | Thr | Ile | Leu | Leu | Ala | Lys | Pro | Phe | Leu | Asn | Ser | Glu | Asn | Tyr | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Glu | Arg | Leu | Ala | Ala | Thr | Val | Asp | Ser | Tyr | Phe | Asp | Leu | Gly | Gln |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ser | Gln | Ile | Val | Phe | Leu | Ser | Lys | Gln | Asp | Gln | Gly | Ile | Thr | Val | Glu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Glu | Leu | Ser | Ala | Lys | Asp | Arg | Lys | Phe | Lys | Pro | Gly | Ser | Met | Asn | Cys |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Thr | Leu | Tyr | Thr | Glu | Asp | Pro | Ile | Leu | Pro | Ala | His | Asn | Ser | Phe | Ser |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Asn | Cys | Ser | Asp | Ile | Gln | Met | Arg | Thr | Pro | Ile | Ser | Pro | Ile | His | |
| | | | 100 | | | | | 105 | | | | | 110 | | |

<210> 170
 <211> 100
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 170

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Tyr | Ile | Asn | Leu | Arg | Arg | Arg | Glu | Asn | Pro | Glu | His | Phe | Phe | Asn |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

<400> 172

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Val | Arg | Lys | Asn | His | Ile | Ile | Arg | Gly | Glu | Lys | Tyr | Asn | Thr | Cys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Thr | Val | Ile | Ala | Phe | Val | Leu | Ser | Met | Ser | Tyr | Asp | Thr | Leu | Phe | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Asn | Leu | Glu | Lys | Glu | Asp | Ser | Val | His | Lys | Ile | Cys | Asn | Glu | Ile | Phe |
| | 35 | | | | | 40 | | | | | 45 | | | | |
| Ala | Leu | Val | Pro | Arg | Leu | Asn | Thr | Ile | Ala | Cys | Thr | Glu | Ala | Ile | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Lys | Asn | Leu | Pro | Lys | Ala | Asp | Ile | His | Val | His | Leu | Pro | Gly | Thr | Ile |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Thr | Pro | Gln | Leu | Ala | Trp | Ile | Leu | Gly | Val | Lys | Asn | Gly | Phe | Leu | Lys |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Trp | Ser | Tyr | Asn | Ser | Trp | Thr | Asn | His | Arg | Leu | Leu | Ser | Pro | Lys | Asn |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Pro | His | Lys | Gln | Tyr | Ser | Asn | Ile | Phe | Arg | Asn | Phe | Gln | Asp | Ile | Cys |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| His | Glu | Lys | Asp | Pro | Asp | Leu | Ser | Val | Leu | Gln | Tyr | Asn | Ile | Leu | Asn |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Tyr | Asp | Phe | Asn | Ser | Phe | Asp | Arg | Val | Met | Ala | Thr | Val | Gln | Gly | His |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Arg | Phe | Pro | Pro | Gly | Ile | Gln | Asn | Glu | Glu | Asp | Leu | Leu | Leu | Ile | |
| | | | 165 | | | | | 170 | | | | | 175 | | |
| Phe | Asn | Asn | Tyr | Leu | Gln | Gln | Cys | Leu | Asp | Asp | Thr | Ile | Val | Tyr | Thr |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Glu | Val | Gln | Gln | Asn | Ile | Arg | Leu | Ala | His | Val | Leu | Tyr | Pro | Ser | Leu |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Pro | Glu | Lys | His | Ala | Arg | Met | Lys | Phe | Tyr | Gln | Ile | Leu | Tyr | Arg | Ala |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ser | Gln | Thr | Phe | Ser | Lys | His | Gly | Ile | Thr | Leu | Arg | Phe | Leu | Asn | Cys |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Phe | Asn | Lys | Thr | Phe | Ala | Pro | Gln | Ile | Asn | Thr | Gln | Glu | Pro | Ala | Gln |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Glu | Ala | Val | Gln | Trp | Leu | Gln | Glu | Val | Asp | Ser | Thr | Phe | Pro | Gly | Leu |
| | | 260 | | | | | 265 | | | | | | 270 | | |
| Phe | Val | Gly | Ile | Gln | Ser | Ala | Gly | Ser | Glu | Ser | Ala | Pro | Gly | Ala | Cys |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Pro | Lys | Arg | Leu | Ala | Ser | Gly | Tyr | Arg | Asn | Ala | Tyr | Asp | Ser | Gly | Phe |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Gly | Cys | Glu | Ala | His | Ala | Gly | Glu | Gly | Ile | Glu | Thr | Arg | Thr | Ile | Phe |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Ser | Ser | Ala | Lys | Val | Asn | Pro | Glu | Gly | Leu | Ile | Glu | Ile | Thr | Arg | Val |
| | | | 325 | | | | | | 330 | | | | | 335 | |
| Thr | Phe | Ser | Ser | Leu | Lys | Arg | Lys | Gln | Pro | Ser | Ser | Leu | Pro | Ile | Arg |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Val | Thr | Cys | Gln | Leu | Gly | | | | | | | | | | |
| | | | 355 | | | | | | | | | | | | |

<210> 173

<211> 432

<212> PRT

<213> Chlamydia pneumoniae

<400> 173

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Ile | Lys | Leu | Gln | Ser | Ala | Arg | Arg | His | Leu | Asn | Thr | Ile | Phe | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Asp | Phe | Gly | Ser | Gln | Tyr | Thr | Tyr | Val | Leu | Ala | Lys | Gln | Val | Arg |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Lys | Leu | Phe | Val | Tyr | Cys | Glu | Val | Leu | Pro | Trp | Asn | Ile | Ser | Val | Gln |
| | | 35 | | | | | 40 | | | | | 45 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Leu | Lys | Glu | Arg | Ala | Pro | Leu | Gly | Ile | Ile | Leu | Ser | Gly | Gly | Pro |
| 50 | | | | | | 55 | | | | | 60 | | | | |
| His | Ser | Val | Tyr | Glu | Asn | Lys | Ala | Pro | His | Leu | Asp | Pro | Glu | Ile | Tyr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Lys | Leu | Gly | Ile | Pro | Ile | Leu | Ala | Ile | Cys | Tyr | Gly | Met | Gln | Leu | Met |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Arg | Asp | Phe | Gly | Gly | Thr | Val | Ser | Pro | Gly | Val | Gly | Glu | Phe | Gly |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Tyr | Thr | Pro | Ile | His | Leu | Tyr | Pro | Cys | Glu | Leu | Phe | Lys | His | Ile | Val |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Asp | Cys | Glu | Ser | Leu | Asp | Thr | Glu | Ile | Arg | Met | Ser | His | Arg | Asp | His |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Val | Thr | Thr | Ile | Pro | Glu | Gly | Phe | Asn | Val | Ile | Ala | Ser | Thr | Ser | Gln |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Cys | Ser | Ile | Ser | Gly | Ile | Glu | Asn | Thr | Lys | Gln | Arg | Leu | Tyr | Gly | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Gln | Phe | His | Pro | Glu | Val | Ser | Asp | Ser | Thr | Pro | Thr | Gly | Asn | Lys | Ile |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Leu | Glu | Thr | Phe | Val | Gln | Glu | Ile | Cys | Ser | Ala | Pro | Thr | Leu | Trp | Asn |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Pro | Leu | Tyr | Ile | Gln | Gln | Asp | Leu | Val | Ser | Lys | Ile | Gln | Asp | Thr | Val |
| | 210 | | | | | 215 | | | | | | 220 | | | |
| Ile | Glu | Val | Phe | Asp | Glu | Val | Ala | Gln | Ser | Leu | Asp | Val | Gln | Trp | Leu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ala | Gln | Gly | Thr | Ile | Tyr | Ser | Asp | Val | Ile | Glu | Ser | Ser | Arg | Ser | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| His | Ala | Ser | Glu | Val | Ile | Lys | Ser | His | His | Asn | Val | Gly | Gly | Leu | Pro |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Lys | Asn | Leu | Lys | Leu | Lys | Leu | Val | Glu | Pro | Leu | Arg | Tyr | Leu | Phe | Lys |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Asp | Glu | Val | Arg | Ile | Leu | Gly | Glu | Ala | Leu | Gly | Leu | Ser | Ser | Tyr | Leu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Leu | Asp | Arg | His | Pro | Phe | Pro | Gly | Pro | Gly | Leu | Thr | Ile | Arg | Val | Ile |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Gly | Glu | Ile | Leu | Pro | Glu | Tyr | Leu | Ala | Ile | Leu | Arg | Arg | Ala | Asp | Leu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ile | Phe | Ile | Glu | Glu | Leu | Arg | Lys | Ala | Lys | Leu | Tyr | Asp | Lys | Ile | Ser |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Gln | Ala | Phe | Ala | Leu | Phe | Leu | Pro | Ile | Lys | Ser | Val | Ser | Val | Lys | Gly |
| | 355 | | | | | | 360 | | | | | 365 | | | |
| Asp | Cys | Arg | Ser | Tyr | Gly | Tyr | Thr | Ile | Ala | Leu | Arg | Ala | Val | Glu | Ser |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Thr | Asp | Phe | Met | Thr | Gly | Arg | Trp | Ala | Tyr | Leu | Pro | Cys | Asp | Val | Leu |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ser | Ser | Cys | Ser | Ser | Arg | Ile | Ile | Asn | Glu | Ile | Pro | Glu | Val | Ser | Arg |
| | | | | 405 | | | | 410 | | | | | | 415 | |
| Val | Val | Tyr | Asp | Ile | Ser | Asp | Lys | Pro | Pro | Ala | Thr | Ile | Glu | Trp | Glu |
| | | | 420 | | | | | 425 | | | | | 430 | | |

<210> 174
 <211> 266
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 174
 Ala Pro Ile Gly Ala Ala Ile Gly Ile Gly Pro Leu Gly Ile Ser Arg
 1 5 10 15
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 20 25 30
 Ala His Ala His Ser Lys Gly Val Phe Gln Thr Val Leu Glu Ile Lys
 35 40 45

Ser Gln Phe Pro Gln Ile Ser Leu Val Val Gly Asn Leu Val Thr Ala
 50 55 60
 Glu Ala Ala Val Ser Leu Ala Glu Ile Gly Val Asp Ala Val Lys Val
 65 70 75 80
 Gly Ile Gly Pro Gly Ser Ile Cys Thr Thr Arg Ile Val Ser Gly Val
 85 90 95
 Gly Tyr Pro Gln Ile Thr Ala Ile Thr Asn Val Ala Lys Ala Leu Lys
 100 105 110
 Asn Ser Ala Val Thr Val Ile Ala Asp Gly Arg Ile Arg Tyr Ser Gly
 115 120 125
 Asp Val Val Lys Ala Leu Ala Ala Gly Ala Asp Cys Val Met Leu Gly
 130 135 140
 Ser Leu Leu Ala Gly Thr Asp Glu Ala Pro Gly Asp Ile Val Ser Ile
 145 150 155 160
 Asp Glu Lys Leu Phe Lys Arg Tyr Arg Gly Met Gly Ser Leu Gly Ala
 165 170 175
 Met Lys Gln Gly Ser Ala Asp Arg Tyr Phe Gln Thr Gln Gly Gln Lys
 180 185 190
 Lys Leu Val Pro Gly Gly Val Glu Gly Leu Val Ala Tyr Lys Gly Ser
 195 200 205
 Val His Asp Val Leu Tyr Gln Ile Leu Gly Gly Ile Arg Ser Gly Met
 210 215 220
 Gly Tyr Val Gly Ala Glu Thr Leu Lys Asp Leu Lys Thr Lys Ala Ser
 225 230 235 240
 Phe Val Arg Ile Thr Glu Ser Gly Arg Ala Glu Ser His Ile His Asn
 245 250 255
 Ile Tyr Lys Val Gln Pro Thr Leu Asn Tyr
 260 265

<210> 175
 <211> 109
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 175
 Thr Ile Phe Asp Leu Ile Tyr Lys Ile Asp Ser Tyr Lys His Gln Gln
 1 5 10 15
 Gly Phe Met Asp Phe Ser Val Phe Pro Asp Arg Phe Val Glu Ser Thr
 20 25 30
 Ser Pro Ser Pro Ile Glu Asp Ile Asp Ala Lys Thr Leu Val Ser Asn
 35 40 45
 Cys Cys His Tyr Cys Ser Arg Cys Leu Phe Ile Phe Leu Ser Leu Leu
 50 55 60
 Ser Ile Ile Ile Cys Phe Ser Val Tyr Gly Thr Ser Gly Glu Thr Ala
 65 70 75 80
 Ser Leu Val Phe Gly Ile Leu Ser Leu Ile Val Leu Val Leu Leu Ile
 85 90 95
 Ile Glu Cys Arg Asn Arg Glu Cys Cys Arg Arg Ile Ser
 100 105

<210> 176
 <211> 170
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 176
 Lys Ile Phe Ile Trp Phe Val Glu Lys Ile Val Ile Leu Ser Met Ile
 1 5 10 15
 Met Thr Thr Ile Ser Asn Ser Pro Ser Pro Ala Leu Asn Pro Glu Leu
 20 25 30

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Leu | Ile | Pro | Pro | Pro | Thr | Leu | Val | Ser | Ser | Gly | Thr | Gln | Thr | Ser |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Ala | Tyr | Thr | Ile | Pro | Ala | Gln | Gly | Arg | Arg | Ser | Thr | Leu | Arg | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Leu | Asp | Ile | Phe | Ile | Ile | Ile | Leu | Gly | Leu | Ala | Thr | Ile | Ile | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Thr | Phe | Ile | Val | Ile | Phe | Phe | Leu | Asn | Gly | Leu | Asn | Leu | Leu | Ser | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Pro | Ser | Ile | Ile | Ser | Ser | Ser | Cys | Leu | Ile | Ile | Val | Gly | Leu | Leu | Phe |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Ile | Met | Gly | Leu | Tyr | Phe | Met | Ile | Ser | Ser | Leu | Asp | Gln | Gly | Leu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Val | Gly | Leu | Leu | Gln | Lys | Glu | Leu | Ser | Gln | Ala | Glu | Glu | Arg | Glu | Glu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Glu | Tyr | Ile | Gln | Glu | Ile | Glu | Ala | Leu | Arg | Gly | Ala | Pro | Arg | Ala | Glu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Pro | Thr | Glu | Ser | Pro | Ser | Thr | Trp | Leu | | | | | | |
| | | | | 165 | | | | | 170 | | | | | | |

<210> 177
 <211> 140
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Leu | Leu | Leu | Ala | Cys | Phe | Gln | Phe | Leu | Leu | Arg | Arg | Arg | Asp | Met | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gln | Pro | Asn | Cys | Val | Ile | Gln | Asp | Thr | Thr | Val | Leu | Tyr | Ala | Leu | |
| | | | 20 | | | | | 25 | | | | 30 | | | |
| Asn | Ser | Phe | Asp | Pro | Arg | Leu | Ser | Asp | Asp | Thr | His | Arg | Leu | Gly | Lys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gln | Ser | Pro | Leu | Glu | Ala | Glu | Asn | Ala | Leu | Gly | Glu | Phe | Ile | Glu | Gly |
| | | | | | | 55 | | | | | 60 | | | | |
| Leu | Asp | Thr | Asn | Ser | Phe | Pro | Leu | Glu | Glu | Val | Ala | Ile | Pro | Ile | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Pro | Gly | Tyr | His | Pro | Lys | Phe | Tyr | Leu | Ser | Phe | Ile | Asp | Arg | Asp | Asp |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Gln | Gly | Val | His | Tyr | Glu | Val | Leu | Asp | Gly | Val | Phe | Leu | Lys | Thr | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ala | Ala | Cys | Ile | Ile | Glu | Asn | Ser | Phe | Leu | Thr | Asp | Ser | Met | Ser | Pro |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Glu | Leu | Leu | Ser | Glu | Val | Lys | Glu | Ala | Leu | Lys | Arg | | | | |
| | 130 | | | | | 135 | | | | | 140 | | | | |

<210> 178
 <211> 416
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Asn | Asp | Asp | Asp | Pro | Met | Asp | Glu | Ser | Asp | Gly | Glu | Glu | Ala | Ser | Lys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Asp | Ser | Ala | Phe | Ser | Ala | Ser | Phe | Ser | Tyr | Glu | Phe | Val | Lys | Ser | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Thr | Arg | Glu | Ser | Lys | Asn | Thr | Val | Thr | His | Ser | Thr | Ala | Ser | Arg | Thr |
| | | | 35 | | | | 40 | | | | | 45 | | | |
| Leu | Tyr | Ile | Leu | Arg | Gln | Asp | Cys | Ser | Tyr | Asp | Pro | Arg | Ala | Leu | Lys |
| | | | | | | 55 | | | | | 60 | | | | |
| Val | Asp | Asp | Glu | Phe | Arg | Tyr | Trp | Val | Glu | Lys | Arg | Leu | Asp | Ala | Lys |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Pro | Asp | Ser | Leu | Asn | Ala | Phe | Val | Lys | Glu | Val | Gly | Thr | His | Tyr |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Val | Ala | Ser | Val | Thr | Tyr | Gly | Gly | Ile | Gly | Phe | Gln | Val | Leu | Lys | Met |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Tyr | Leu | Gln | Val | Glu | Glu | Leu | Glu | Lys | Glu | Lys | Ile | Ser | Ile | Ser |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Val | Ala | Ala | Ala | Ser | Ser | Leu | Leu | Lys | Ser | Lys | Thr | Ser | Asn | Ala | Thr |
| | | 130 | | | | 135 | | | | | 140 | | | | |
| Glu | Lys | Gly | Tyr | Ser | Ser | Tyr | Gln | Ser | Glu | Ser | Ser | Ala | Gln | Thr | Val |
| 145 | | | | | 150 | | | | 155 | | | | | | 160 |
| Phe | Leu | Gly | Gly | Thr | Val | Leu | Pro | Asp | Leu | Gln | Gln | Asp | Lys | Leu | Asp |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Phe | Lys | Asp | Trp | Ser | Glu | Ser | Ile | Pro | Asn | Glu | Pro | Ile | Pro | Leu | Ala |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Ile | Ser | Val | Ser | Ser | Ile | Thr | Asp | Leu | Ile | Ile | Pro | Glu | Leu | Phe | Pro |
| | | 195 | | | | 200 | | | | | | 205 | | | |
| Ser | Glu | Asp | Ala | Gln | Val | Leu | Ser | Gln | Lys | Lys | Ser | Ala | Leu | Gly | Gln |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Val | Ile | Leu | Asn | Tyr | Leu | Glu | Ser | His | Lys | Pro | Lys | Glu | Glu | Gly | Pro |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Lys | Pro | Val | Gln | Ile | Thr | Ser | Gly | Phe | Asn | Ser | Ser | Ser | Ser | Val | Phe |
| | | | 245 | | | | | 250 | | | | | | 255 | |
| Thr | Leu | Gln | Ala | Ala | Lys | Ala | Pro | Lys | Thr | Val | Ser | Phe | Pro | Tyr | Ile |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Asp | Tyr | Trp | Ser | Thr | Ile | Pro | Tyr | Leu | Phe | Pro | Thr | Leu | Lys | Glu | Thr |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ser | Gly | Ala | Gln | Pro | Leu | Ser | Phe | Tyr | Leu | Arg | Phe | Asp | Asp | Ile | Phe |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Glu | Gln | Gln | Asn | Leu | Val | His | Asn | Thr | Ser | Tyr | Ile | Leu | Ala | Ser | Thr |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Ser | Val | Arg | Leu | Gly | Tyr | Phe | Gly | Asp | Ser | Tyr | Arg | Asp | Tyr | Asp | Ala |
| | | | 325 | | | | | 330 | | | | | | 335 | |
| Leu | Ser | Phe | Tyr | Gly | Ser | Trp | Pro | Gln | Ala | Tyr | Phe | Asp | Trp | Ala | Gly |
| | | 340 | | | | | | 345 | | | | | 350 | | |
| Tyr | Lys | Asp | Arg | Cys | Thr | Trp | Thr | Leu | Glu | Lys | Leu | Asn | Thr | Thr | Gly |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Asp | Leu | Phe | Ile | Arg | Ser | Gly | Asp | Glu | Ile | Arg | Leu | Lys | His | Asn | Thr |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Ser | Gly | Lys | Tyr | Leu | Ala | Thr | Thr | Ser | Met | Ser | Asp | Gly | Tyr | Gln | Lys |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Leu | Thr | Cys | Thr | Thr | Gln | Thr | Ser | Asp | Ser | Val | Phe | Ile | Ile | Thr | Val |
| | | | 405 | | | | | | 410 | | | | | 415 | |

<210> 179

<211> 302

<212> PRT

<213> Chlamydia pneumoniae

<400> 179

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Lys | Arg | Glu | Gln | Thr | Lys | Ser | Lys | Phe | Ile | Phe | Leu | Ile | Ser | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Glu | Ser | Met | Lys | Gln | Pro | Met | Ser | Leu | Ile | Phe | Ser | Ser | Val | Cys | Leu |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Gly | Leu | Gly | Leu | Gly | Ser | Leu | Ser | Ser | Cys | Asn | Gln | Lys | Pro | Ser | Trp |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Asn | Tyr | His | Asn | Thr | Ser | Thr | Ser | Glu | Glu | Phe | Phe | Val | His | Gly | Asn |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Lys | Ser | Val | Ser | Gln | Leu | Pro | His | Tyr | Pro | Ser | Ala | Phe | Arg | Thr | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gln | Ile | Phe | Ser | Glu | Glu | His | Asn | Asp | Pro | Tyr | Val | Val | Ala | Lys | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Glu | Glu | Ser | Arg | Lys | Ile | Trp | Arg | Glu | Ile | His | Lys | Asn | Leu | Lys | 100 | 105 | 110 |
| Ile | Lys | Gly | Ser | Tyr | Ile | Pro | Ile | Ser | Thr | Tyr | Gly | Ser | Leu | Met | His | 115 | 120 | 125 |
| Pro | Lys | Ser | Ala | Ala | Leu | Thr | Leu | Lys | Thr | Tyr | Arg | Pro | His | Pro | Ile | 130 | 135 | 140 |
| Trp | Ile | Asn | Gly | Tyr | Glu | Arg | Ser | Phe | Asn | Ile | Asp | Thr | Gly | Lys | Tyr | 145 | 150 | 155 |
| Leu | Lys | Asn | Gly | Ser | Arg | Arg | Arg | Thr | Ser | His | Asp | Gly | Pro | Lys | Asn | 165 | 170 | 175 |
| Arg | Ala | Val | Leu | Asn | Leu | Ile | Lys | Ser | Ser | Gly | Arg | Arg | Cys | Asn | Ala | 180 | 185 | 190 |
| Ile | Gly | Leu | Glu | Met | Thr | Glu | Glu | Asp | Phe | Val | Ile | Ala | Arg | Arg | Arg | 195 | 200 | 205 |
| Glu | Gly | Val | Tyr | Ser | Leu | Tyr | Pro | Val | Glu | Val | Cys | Ser | Tyr | Pro | Gln | 210 | 215 | 220 |
| Gly | Asn | Pro | Phe | Val | Ile | Ala | Tyr | Ala | Trp | Ile | Ala | Asp | Glu | Ser | Ala | 225 | 230 | 235 |
| Cys | Ser | Lys | Glu | Val | Leu | Pro | Val | Lys | Gly | Tyr | Tyr | Ser | Leu | Val | Trp | 245 | 250 | 255 |
| Glu | Ser | Val | Ser | Ser | Ser | Asp | Ser | Leu | Asn | Ala | Phe | Gly | Asp | Ser | Phe | 260 | 265 | 270 |
| Ala | Glu | Asp | Tyr | Leu | Arg | Ser | Thr | Phe | Leu | Ala | Asn | Gly | Thr | Ser | Ile | 275 | 280 | 285 |
| Leu | Cys | Val | His | Glu | Ser | Tyr | Lys | Lys | Val | Pro | Pro | Gln | Pro | | | 290 | 295 | 300 |

<210> 180
 <211> 88
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 180

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|
| Val | Lys | Glu | Tyr | Leu | Asp | Phe | Leu | Val | Gln | Arg | Asn | Val | Glu | Arg | Asp | 1 | 5 | 10 | 15 |
| Pro | Gln | Thr | Lys | Arg | His | Cys | Thr | Val | Ser | Gln | Lys | Phe | Gly | Gly | Glu | 20 | 25 | 30 | |
| Ser | Ile | Asp | Ala | Lys | Thr | Thr | Thr | Gly | Gln | Leu | Phe | His | Ile | Ala | Gly | 35 | 40 | 45 | |
| Lys | Thr | Glu | Pro | Gly | His | Gly | Lys | Leu | Cys | Leu | Gly | Glu | Ser | Ile | Leu | 50 | 55 | 60 | |
| Lys | Gln | Leu | Leu | Ala | Leu | Gly | Ile | Ile | Thr | Gly | Tyr | Glu | Asn | Arg | Glu | 65 | 70 | 75 | 80 |
| Arg | Glu | Val | Trp | Val | Tyr | Leu | Asp | | | | | | | | | 85 | | | |

<210> 181
 <211> 165
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 181

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|
| Pro | Lys | Ile | Trp | Asp | Thr | His | Phe | Glu | Thr | Arg | Ile | Glu | Ala | Thr | Ser | 1 | 5 | 10 | 15 |
| Val | Pro | Lys | Phe | Asn | Arg | Arg | Leu | Arg | Lys | Ser | Phe | His | Lys | Ser | Gly | 20 | 25 | 30 | |
| Arg | Ser | Ser | Arg | Pro | Ser | Lys | Ala | Cys | Val | Ala | Asn | Phe | Phe | Asn | Phe | 35 | 40 | 45 | |
| Thr | Leu | Gln | Ala | Gly | Arg | Ser | Gly | Ile | Ile | Pro | Gly | Lys | Lys | Ala | Ile | 50 | 55 | 60 | |

Leu Leu Asn Val Asn Asp Ala Lys Thr Pro Asn Tyr Ser Cys Ile Phe
 65 70 75 80
 Glu Ser Ile Gly Phe Phe Asn Glu Gln Asp Leu Glu Ala Gln His Asn
 85 90 95
 Gln Gln Ala Ala Leu Val Arg Lys Ile Leu Lys Val Val Pro His His
 100 105 110
 Phe Leu Lys Gly Leu Ile Ala Lys Leu Pro Arg Ser Leu Lys Lys Asp
 115 120 125
 Arg Lys Phe Met Ser Ser Leu Ile Phe Thr Lys Leu Ser Tyr Ala Leu
 130 135 140
 Asp Leu Ser Ala Pro Met His Leu Glu Gly Lys Pro Asn Leu Ser Tyr
 145 150 155 160
 Glu Glu Lys Leu Asp
 165

<210> 182
 <211> 203
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 182
 Thr Ser Leu His Lys Ile Leu Asp Cys Lys Tyr Lys Pro Val Phe Ile
 1 5 10 15
 Gln Asn Thr Val Ala Ser Glu Thr Tyr Pro Ser Gln Ile Leu His Ala
 20 25 30
 Gln Arg Glu Val Arg Asp Ala Tyr Phe Asn Gln Ala Asp Cys His Pro
 35 40 45
 Ala Arg Ala Asn Gln Ile Leu Glu Ala Lys Lys Ile Cys Leu Leu Asp
 50 55 60
 Val Tyr His Thr Asn His Tyr Ser Val Phe Thr Phe Cys Val Asp Asn
 65 70 75 80
 Tyr Pro Asn Leu Arg Phe Thr Phe Val Ser Ser Lys Asn Asn Glu Met
 85 90 95
 Asn Gly Leu Ser Asn Pro Leu Asp Asn Val Leu Val Glu Ala Met Val
 100 105 110
 Arg Arg Thr His Ala Arg Asn Leu Leu Ala Ala Cys Lys Ile Arg Asn
 115 120 125
 Ile Glu Val Pro Arg Val Val Gly Leu Asp Leu Arg Ser Gly Ile Leu
 130 135 140
 Ile Ser Lys Leu Glu Leu Lys Gln Pro Gln Phe Gln Ser Leu Thr Glu
 145 150 155 160
 Asp Phe Val Asn His Ser Thr Asn Gln Glu Glu Ala Arg Val His Gln
 165 170 175
 Lys His Val Leu Leu Ile Ser Leu Ile Leu Leu Cys Lys Gln Ala Val
 180 185 190
 Leu Glu Ser Phe Gln Glu Lys Lys Arg Ser Ser
 195 200

<210> 183
 <211> 133
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 183
 Val His Glu Leu Phe Lys Ile Asp Gly Val Tyr Tyr Phe Phe Lys Lys
 1 5 10 15
 Phe Met Lys Leu Phe Tyr Asn Asn Tyr Ser Leu Asn Ser His His Glu
 20 25 30
 Lys Pro Ser Ser Leu Glu Lys Ala Val Gln Ala Leu Asp Ser Tyr Phe
 35 40 45

Tyr Trp Gly Gly Asp Thr Thr Asp Val Leu Ala Arg Asp Asp Ile Ser
 50 55 60
 Arg Glu Ile Tyr Cys Val Arg Arg Leu Tyr Ile Arg Phe Trp Ile Val
 65 70 75 80
 Ser Ile Ser Gln Ser Leu Ser Arg Ile Pro Trp Arg Leu Lys Arg Ile
 85 90 95
 Leu Leu Arg Tyr Cys Thr Leu Arg Gly Lys Tyr Val Met Pro Ile Leu
 100 105 110
 Ile Lys Arg Ile Ala Ile Leu Leu Gly Leu Ile Arg Phe Ser Arg Leu
 115 120 125
 Arg Lys Ser Val Tyr
 130

<210> 184
 <211> 457
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 184
 Arg Cys Ile Met Lys Lys Val Leu Ile Ala Asn Arg Gly Glu Ile Ala
 1 5 10 15
 Val Arg Ile Ile Arg Ala Cys His Asp Leu Gly Leu Ser Thr Val Ala
 20 25 30
 Val Tyr Ser Leu Ala Asp Gln Glu Ala Leu His Val Leu Leu Ala Asp
 35 40 45
 Glu Ala Ile Cys Ile Gly Glu Pro Gln Ala Ala Lys Ser Tyr Leu Lys
 50 55 60
 Ile Ser Asn Ile Leu Ala Ala Cys Glu Ile Thr Gly Ala Asp Ala Val
 65 70 75 80
 His Pro Gly Tyr Gly Phe Leu Ser Glu Asn Ala Asn Phe Ala Ser Ile
 85 90 95
 Cys Glu Ser Cys Gly Leu Thr Phe Ile Gly Pro Ser Ser Glu Ser Ile
 100 105 110
 Ala Met Met Gly Asp Lys Ile Ala Ala Lys Ser Leu Ala Lys Lys Ile
 115 120 125
 Lys Cys Pro Val Ile Pro Gly Ser Glu Gly Ile Ile Glu Asp Glu Ser
 130 135 140
 Glu Gly Leu Lys Ile Ala Glu Lys Ile Gly Phe Pro Ile Val Ile Lys
 145 150 155 160
 Ala Val Ala Gly Gly Gly Arg Gly Ile Arg Ile Val Lys Glu Lys
 165 170 175
 Asp Glu Phe Tyr Arg Ala Phe Ser Ala Ala Arg Ala Glu Ala Glu Ala
 180 185 190
 Gly Phe Asn Asn Pro Asn Val Tyr Ile Glu Lys Phe Ile Glu Asn Pro
 195 200 205
 Arg His Leu Glu Ile Gln Val Ile Gly Asp Thr His Gly Asn Tyr Val
 210 215 220
 His Leu Gly Glu Arg Asp Cys Thr Ile Gln Arg Arg Gln Lys Leu
 225 230 235 240
 Ile Glu Glu Thr Pro Ser Pro Ile Leu Asn Ala Glu Ile Arg Val Lys
 245 250 255
 Val Gly Lys Val Ala Val Asp Leu Ala Arg Ser Ala Gly Tyr Phe Ser
 260 265 270
 Val Gly Thr Val Glu Phe Leu Leu Asp Lys Asp Lys Lys Phe Tyr Phe
 275 280 285
 Met Glu Met Asn Thr Arg Ile Gln Val Glu His Thr Ile Thr Glu Glu
 290 295 300
 Val Thr Gly Ile Asp Leu Val Lys Glu Gln Ile His Val Ala Met Gly
 305 310 315 320
 Asn Lys Leu Pro Trp Lys Gln Lys Asn Ile Glu Phe Ser Gly His Ile
 325 330 335

Ile Gln Cys Arg Ile Asn Ala Glu Asp Pro Thr Asn Asn Phe Ser Pro
 340 345 350
 Ser Pro Gly Arg Leu Asp Tyr Tyr Leu Pro Pro Ala Gly Pro Ser Ile
 355 360 365
 Arg Val Asp Gly Ala Cys Tyr Ser Gly Tyr Ala Ile Pro Pro Tyr Tyr
 370 375 380
 Asp Ser Met Ile Ala Lys Val Ile Ala Lys Gly Lys Asn Arg Glu Glu
 385 390 395 400
 Ala Ile Ala Ile Met Lys Arg Ala Leu Lys Glu Phe His Ile Gly Gly
 405 410 415
 Val Gln Ser Thr Ile Pro Phe His Gln Phe Met Leu Asp Asn Pro Lys
 420 425 430
 Phe Leu Glu Ser Asn Tyr Asp Ile Asn Tyr Ile Asp Asn Leu Leu Ala
 435 440 445
 Gln Gly Asn Ser Phe Phe Lys Glu Phe
 450 455

<210> 185

<211> 171

<212> PRT

<213> Chlamydia pneumoniae

<400> 185

Arg Arg Leu Gly Met Asp Leu Lys Gln Ile Glu Lys Leu Met Ile Ala
 1 5 10 15
 Met Gly Arg Asn Gly Met Lys Arg Phe Ala Ile Lys Arg Glu Gly Leu
 20 25 30
 Glu Leu Glu Leu Glu Arg Asp Thr Arg Glu Gly Asn Arg Gln Glu Pro
 35 40 45
 Val Phe Tyr Asp Ser Arg Leu Phe Ser Gly Phe Ser Gln Glu Arg Pro
 50 55 60
 Ile Pro Thr Asp Pro Lys Lys Asp Thr Ile Lys Glu Thr Thr Thr Glu
 65 70 75 80
 Asn Ser Glu Thr Ser Thr Thr Thr Ser Ser Gly Asp Phe Ile Ser Ser
 85 90 95
 Pro Leu Val Gly Thr Phe Tyr Gly Ser Pro Ala Pro Asp Ser Pro Ser
 100 105 110
 Phe Val Lys Pro Gly Asp Ile Val Ser Glu Asp Thr Ile Val Cys Ile
 115 120 125
 Val Glu Ala Met Lys Val Met Asn Glu Val Lys Ala Gly Met Ser Gly
 130 135 140
 Arg Val Leu Glu Val Leu Ile Thr Asn Gly Asp Pro Val Gln Phe Gly
 145 150 155 160
 Ser Lys Leu Phe Arg Ile Ala Lys Asp Ala Ser
 165 170

<210> 186

<211> 198

<212> PRT

<213> Chlamydia pneumoniae

<400> 186

Gln Trp Lys Ile Lys Phe Cys Cys Cys Glu Glu Lys Ile Met Val Leu
 1 5 10 15
 Ser Ser Gln Leu Ser Val Gly Met Phe Ile Ser Thr Lys Asp Gly Leu
 20 25 30
 Tyr Lys Val Thr Ser Val Ser Lys Val Ala Gly Pro Lys Gly Glu Ser
 35 40 45
 Phe Ile Lys Val Ala Leu Gln Ala Ala Asp Ser Asp Val Val Ile Glu
 50 55 60

<400> 188

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Ile | Lys | Asp | Lys | Ile | Leu | Met | Ser | Ser | Pro | Val | Asn | Asn | Thr | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Ala | Pro | Asn | Ile | Pro | Ile | Pro | Ala | Pro | Thr | Thr | Pro | Gly | Ile | Pro |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Thr | Thr | Lys | Pro | Arg | Ser | Ser | Phe | Ile | Glu | Lys | Val | Ile | Ile | Val | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Lys | Tyr | Ile | Leu | Phe | Ala | Ile | Ala | Ala | Thr | Ser | Gly | Ala | Leu | Gly | Thr |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Leu | Gly | Leu | Ser | Gly | Ala | Leu | Thr | Pro | Gly | Ile | Gly | Ile | Ala | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Val | Ile | Phe | Phe | Val | Ser | Met | Val | Leu | Leu | Gly | Leu | Ile | Leu | Lys |
| | | | | 85 | | | | 90 | | | | | | 95 | |
| Asp | Ser | Ile | Ser | Gly | Gly | Glu | Glu | Arg | Arg | Leu | Arg | Glu | Glu | Val | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Arg | Phe | Thr | Ser | Glu | Asn | Gln | Arg | Leu | Thr | Val | Ile | Thr | Thr | Thr | Leu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Glu | Thr | Glu | Val | Lys | Asp | Leu | Lys | Ala | Ala | Lys | Asp | Gln | Leu | Thr | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Glu | Ile | Glu | Ala | Phe | Arg | Asn | Glu | Asn | Gly | Asn | Leu | Lys | Thr | Thr | Ala |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Glu | Asp | Leu | Glu | Glu | Gln | Val | Ser | Lys | Leu | Ser | Glu | Gln | Leu | Glu | Ala |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Leu | Glu | Arg | Ile | Asn | Gln | Leu | Ile | Gln | Ala | Asn | Ala | Gly | Asp | Ala | Gln |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Glu | Ile | Ser | Ser | Glu | Leu | Lys | Lys | Leu | Ile | Ser | Gly | Trp | Asp | Ser | Lys |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Val | Val | Glu | Gln | Ile | Asn | Thr | Ser | Ile | Gln | Ala | Leu | Lys | Val | Leu | Leu |
| | 210 | | | | | 215 | | | | | | 220 | | | |
| Gly | Gln | Glu | Trp | Val | Gln | Glu | Ala | Gln | Thr | His | Val | Lys | Ala | Met | Gln |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Glu | Gln | Ile | Gln | Ala | Leu | Gln | Ala | Glu | Ile | Leu | Gly | Met | His | Asn | Gln |
| | | | | 245 | | | | 250 | | | | | | 255 | |
| Ser | Thr | Ala | Leu | Gln | Lys | Ser | Val | Glu | Asn | Leu | Leu | Val | Gln | Asp | Gln |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ala | Leu | Thr | Arg | Val | Val | Gly | Glu | Leu | Leu | Glu | Ser | Glu | Asn | Lys | Leu |
| | | 275 | | | | 280 | | | | | | 285 | | | |
| Ser | Gln | Ala | Cys | Ser | Ala | Leu | Arg | Gln | Glu | Ile | Glu | Lys | Leu | Ala | Gln |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| His | Glu | Thr | Ser | Leu | Gln | Gln | Arg | Ile | Asp | Ala | Met | Leu | Ala | Gln | Glu |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Gln | Asn | Leu | Ala | Glu | Gln | Val | Thr | Ala | Leu | Glu | Lys | Met | Lys | Gln | Glu |
| | | | | 325 | | | | 330 | | | | | | 335 | |
| Ala | Gln | Lys | Ala | Glu | Ser | Glu | Phe | Ile | Ala | Cys | Val | Arg | Asp | Arg | Thr |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Phe | Gly | Arg | Arg | Glu | Thr | Pro | Pro | Pro | Thr | Thr | Pro | Val | Val | Glu | Gly |
| | | 355 | | | | 360 | | | | | | 365 | | | |
| Asp | Glu | Ser | Gln | Glu | Glu | Asp | Glu | Gly | Gly | Thr | Pro | Pro | Val | Ser | Gln |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Pro | Ser | Ser | Pro | Val | Asp | Arg | Ala | Thr | Gly | Asp | Gly | Gln | | | |
| 385 | | | | | 390 | | | | | 395 | | | | | |

<210> 189

<211> 276

<212> PRT

<213> Chlamydia pneumoniae

<400> 189

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Phe | Leu | Thr | Tyr | Thr | Arg | Thr | Leu | Pro | Met | His | Ser | Lys | Phe | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ser | Arg | Arg | Lys | Lys | Asn | Ser | Ser | His | Lys | Glu | Glu | Thr | Ser | Trp | Asp | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Cys | Ile | Ala | Ser | Ser | Tyr | Asn | Lys | Ile | Val | Gln | Asp | Lys | Gly | His | Tyr | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Tyr | His | Arg | Glu | Thr | Ile | Leu | Pro | Gln | Leu | Leu | Pro | Ser | Leu | Thr | Leu | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Gly | Ser | Lys | Ser | Ser | Val | Leu | Asp | Ile | Gly | Cys | Gly | Gln | Gly | Phe | Leu | |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 | |
| Glu | Arg | Ala | Leu | Pro | Lys | Glu | Cys | Arg | Tyr | Leu | Gly | Ile | Asp | Ile | Ser | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Ser | Arg | Leu | Ile | Ala | Leu | Ala | Lys | Lys | Met | Arg | Ser | Val | Asn | Ser | His | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Gln | Phe | Lys | Val | Ala | Asp | Leu | Ser | Lys | Arg | Leu | Glu | Phe | Val | Glu | Pro | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Thr | Leu | Phe | Ser | His | Ala | Val | Ala | Ile | Leu | Ser | Leu | Gln | Asn | Met | Glu | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Phe | Pro | Gly | Glu | Ala | Ile | Arg | Asn | Thr | Ala | Thr | Leu | Leu | Glu | Pro | Leu | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Gly | Gln | Phe | Phe | Ile | Val | Leu | Asn | His | Pro | Cys | Phe | Arg | Ile | Pro | Arg | |
| | | | | 165 | | | | 170 | | | | | | 175 | | |
| Ala | Ser | Ser | Trp | His | Tyr | Asp | Glu | Asn | Lys | Lys | Ala | Ile | Ser | Arg | His | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Ile | Asp | Arg | Tyr | Leu | Ser | Pro | Met | Lys | Ile | Pro | Ile | Met | Ala | His | Pro | |
| | 195 | | | | | 200 | | | | | 205 | | | | | |
| Gly | Gln | Lys | Asp | Ser | Pro | Ser | Thr | Leu | Ser | Phe | His | Phe | Pro | Leu | Ser | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Tyr | Trp | Phe | Lys | Glu | Leu | Ser | Ser | His | Gly | Phe | Leu | Val | Ser | Gly | Leu | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Glu | Glu | Trp | Thr | Ser | Ser | Lys | Thr | Ser | Thr | Gly | Lys | Arg | Ala | Lys | Ala | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Glu | Asn | Leu | Cys | Arg | Lys | Glu | Phe | Pro | Leu | Phe | Leu | Met | Ile | Ser | Cys | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Ile | Lys | Ile | Lys | | | | | | | | | | | | | |
| | | 275 | | | | | | | | | | | | | | |

<210> 190

<211> 437

<212> PRT

<213> Chlamydia pneumoniae

<400> 190

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Lys | Thr | Leu | Asn | Ser | Cys | Ile | Met | Phe | Arg | Lys | Leu | Phe | Pro | Phe | Ser | |
| 1 | | | | 5 | | | | 10 | | | | | | 15 | | |
| Lys | Lys | Lys | Thr | Gly | Gln | Lys | Gln | Arg | Leu | Arg | Asn | Asn | Gly | Leu | Leu | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Gln | Ala | Ile | Ile | Gln | Ser | Ile | Lys | Val | Leu | Leu | His | Asn | Glu | Ala | Ser | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Lys | Glu | Ala | Cys | Val | Leu | Ser | Tyr | Tyr | Gly | Leu | Leu | Thr | Cys | Val | Pro | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Ile | Leu | Val | Phe | Phe | Leu | Arg | Leu | Ser | Gln | His | Leu | Phe | Thr | Asn | Leu | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Asn | Trp | Lys | Glu | Trp | Leu | Ile | Ile | Lys | Phe | Pro | Asp | Tyr | Lys | Lys | Pro | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Ile | Val | Ala | Ile | Val | Glu | Ala | Ala | Tyr | His | Ala | Thr | Glu | Ser | Asn | Ile | |
| | | 100 | | | | | | 105 | | | | | 110 | | | |
| Gly | Leu | Val | Leu | Val | Gly | Ser | Phe | Phe | Val | Phe | Cys | Trp | Ala | Gly | Ile | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Leu | Met | Leu | Leu | Ser | Leu | Glu | Asp | Gly | Leu | Asn | Lys | Ile | Phe | Arg | Thr | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Ser | Trp | Thr | Pro | Ile | Ser | Leu | Lys | Arg | Leu | Val | Ser | Tyr | Phe | Val | Ile | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Glu | His | Gly | Phe | Ile | Thr | Met | Lys | Thr | Val | Ser | Gly | Ser | Ser | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Val | Ser | Gly | Phe | Tyr | Leu | Glu | Lys | Ser | Ser | Glu | Lys | Phe | Met | Thr |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Lys | Cys | Val | Val | Ser | Glu | Asp | Gln | Gln | Ser | Gly | Asn | Ile | Phe | Ile | Glu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ser | Val | Leu | Ser | Pro | Asp | Val | Ser | Ile | Ser | Ala | Gln | Phe | Ser | Ser | Val |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Pro | Val | Ala | Phe | Phe | Lys | Ile | Phe | Ile | Ala | Ser | Pro | Phe | Trp | Asp | His |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Leu | Ser | Tyr | Glu | Asp | Ile | Ile | Asn | Leu | Ser | Ala | Glu | Ala | Thr | His |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Thr | Asn | Asp | Gly | Lys | Ile | Ser | Met | Thr | Ala | Ser | Gly | Glu | Gly | Asn | Gln |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ile | Gln | Met | Lys | Leu | Gln | Gly | His | Ile | His | Lys | Ser | Thr | Phe | Tyr | Ile |
| | | | 260 | | | | 265 | | | | | | 270 | | |
| Val | Glu | Gly | Ser | Ser | Ser | Phe | Ile | Glu | Leu | Lys | Pro | Glu | Leu | Ala | Ser |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ala | Leu | Cys | Asn | Gln | Ile | Ile | Pro | Leu | Ser | Thr | Pro | Ile | Thr | Ser | Lys |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Gln | Ile | His | Ala | Thr | Val | Ser | Tyr | Ala | Lys | Ile | Pro | Leu | Asp | Ile | Thr |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Lys | Trp | Lys | His | Ile | Glu | Ile | Thr | Ser | Gln | Ala | Gln | Leu | Pro | Glu | Val |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ala | Ile | His | Pro | Lys | Asp | Pro | Asn | Leu | Ala | Leu | Gln | Leu | Arg | Asp | Thr |
| | | | 340 | | | | 345 | | | | | | 350 | | |
| Lys | Leu | Gly | Ile | Lys | Lys | Thr | Glu | Lys | Phe | Ser | Asp | Ile | Arg | Tyr | Ser |
| | 355 | | | | | | 360 | | | | | 365 | | | |
| Ser | Ser | Thr | Val | Leu | Gly | Gly | Ala | Ser | Pro | Ser | His | Leu | Asn | Gly | Leu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Ile | Ser | Ile | Asp | Asn | Lys | Lys | His | Leu | Thr | Lys | Phe | Arg | Leu | Gln | Gln |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ala | Gln | Leu | Pro | His | Thr | Tyr | Leu | Arg | Ala | Ile | Phe | Pro | Gln | Pro | Phe |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Val | Ile | Asn | Val | Pro | Leu | Asp | Val | Ala | Tyr | Tyr | Ser | Leu | Asn | Ile | Glu |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Gly | Thr | Tyr | Lys | Asn | Ala | His | Leu | Glu | Ala | Asp | Ala | Ile | Leu | Asp | Asn |
| | 435 | | | | | | 440 | | | | | 445 | | | |
| Pro | Leu | Leu | Lys | Leu | Ser | Cys | Ser | Met | Ser | Gly | Thr | Trp | Lys | Asn | Phe |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Leu | Phe | Lys | Gly | Gln | Gly | Thr | Tyr | His | Phe | Asn | Lys | Lys | Trp | Gln | Glu |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Ile | Leu | Ser | Pro | His | Phe | Ser | Tyr | Ala | Glu | Ala | Arg | Phe | Ser | Gly | Lys |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Ala | Gln | Ile | Thr | Asp | Thr | Asn | Leu | Phe | Phe | Pro | Lys | Phe | Ser | Gly | Lys |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Ile | Thr | Ala | Arg | Glu | Asn | Glu | Leu | Leu | Ile | His | Ala | Lys | Phe | Gly | Ser |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Pro | Asn | Glu | Pro | Ile | Lys | Pro | Glu | Thr | Thr | Ser | Ile | Leu | Ile | His | Gly |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Gln | Phe | Cys | Ser | Leu | Pro | Leu | Ser | Leu | Val | Ser | Asn | His | Leu | Ala | Pro |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Phe | His | Leu | Lys | Lys | Leu | Thr | Phe | Ser | Phe | His | Thr | Asp | Gly | Gly | Lys |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Phe | Val | Thr | Lys | Gly | Asn | Leu | Gln | Ala | Leu | Ile | Glu | Asn | Pro | Asp | Tyr |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Pro | Asp | Leu | Asn | Asn | Thr | Arg | Ile | Leu | Ile | Pro | Asp | Leu | Leu | Leu | Ser |
| | 595 | | | | | | 600 | | | | | 605 | | | |
| Leu | Asp | Glu | Ser | Ser | Thr | Ser | Pro | Ser | Ser | Lys | Asp | Leu | Lys | Ile | Gln |
| 610 | | | | | | 615 | | | | | | 620 | | | |

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| Gly | Ser | Gly | Glu | Ile | Phe | Ser | Leu | Pro | Leu | Asp | Ser | Ile | Thr | Lys | Thr | 625 | 630 | 635 | 640 |
| Tyr | Gly | Lys | Gln | Val | Arg | Leu | Ser | Pro | Tyr | Phe | Gly | Ser | Ser | Gly | Asp | | | | |
| Leu | Asn | Phe | Val | Val | Asn | Tyr | Asn | Pro | Lys | Asp | Gln | Asn | Lys | Leu | Thr | 645 | 650 | 655 | |
| Leu | Leu | Ser | Asn | Phe | Lys | Ser | Glu | Ala | Leu | Leu | Gly | Glu | Leu | Lys | Leu | 660 | 665 | 670 | |
| Val | Met | Asp | Phe | Ser | Met | Lys | Leu | Ser | Ser | Gly | Thr | Gln | Gly | Thr | Leu | 675 | 680 | 685 | |
| Gln | Trp | Glu | Val | Ser | Pro | Glu | Arg | Tyr | Ala | Ser | Phe | Phe | Lys | Asn | Ala | 690 | 695 | 700 | |
| Ser | Cys | Ser | Pro | Thr | Cys | Leu | Leu | His | Arg | Thr | Ala | Asn | Val | Arg | Leu | 705 | 710 | 715 | 720 |
| Asp | Ile | Ser | Lys | Leu | Ser | Cys | Pro | Glu | Glu | Thr | Lys | Gly | Leu | Ser | Cys | 725 | 730 | 735 | |
| Leu | Thr | Leu | Leu | Ala | Ala | Gly | Gly | Leu | Glu | Gly | Ser | Leu | Glu | Ala | Thr | 740 | 745 | 750 | |
| Pro | Leu | Ile | Phe | Tyr | Asp | Asn | Val | Ser | Lys | Glu | Thr | Phe | Ile | Ile | Asn | 755 | 760 | 765 | |
| Asp | Phe | Lys | Gly | Ser | Leu | Arg | Ala | Asn | Asn | Leu | Asp | Ala | Lys | Ile | Glu | 770 | 775 | 780 | |
| Tyr | Asp | Leu | Lys | Gly | Ser | Cys | Leu | Ala | Pro | Arg | Gln | Asp | Ser | Lys | Thr | 785 | 790 | 795 | 800 |
| Leu | Ala | Glu | Phe | Ser | Leu | Glu | Gly | Gln | Val | Asp | His | Leu | Phe | Ser | Pro | 805 | 810 | 815 | |
| Glu | Ser | Arg | Glu | Phe | Lys | Gln | Thr | Ala | Asn | Trp | Ile | His | Ile | Pro | Ser | 820 | 825 | 830 | |
| Ser | Phe | Ile | Ala | Gly | Ile | Ile | Pro | Met | Ser | Pro | Gly | Leu | Lys | Ala | Gln | 835 | 840 | 845 | |
| Ile | Ser | Ser | Leu | Ala | Gly | Pro | Arg | Ile | Asn | Val | Ser | Ile | Lys | Asn | Ala | 850 | 855 | 860 | |
| Phe | Arg | Phe | Gly | Glu | Gly | Pro | Val | Asp | Ile | Met | Val | Asp | Ser | Glu | Asn | 865 | 870 | 875 | 880 |
| Leu | Gln | Ala | Gln | Ile | Pro | Leu | Ile | Leu | Asn | Glu | Lys | Ser | Ile | Leu | Leu | 885 | 890 | 895 | |
| Arg | Glu | Asn | Leu | Thr | Ala | His | Leu | Ser | Ile | Asn | Glu | Asp | Val | Asn | Lys | 900 | 905 | 910 | |
| Ala | Phe | Leu | Gln | Glu | Phe | Asn | Pro | Leu | Leu | Ala | Gly | Gly | Ala | Tyr | Ser | 915 | 920 | 925 | |
| Gln | Tyr | Pro | Val | Thr | Leu | Glu | Ile | Asp | Lys | Gln | Asn | Phe | Tyr | Leu | Pro | 930 | 935 | 940 | |
| Ile | Arg | Pro | Tyr | Ser | Phe | Glu | Glu | Phe | Arg | Ile | Gln | Ser | Ala | Thr | Leu | 945 | 950 | 955 | 960 |
| Asp | Met | Gly | Lys | Ile | Ser | Ile | Ala | Asn | Thr | Gly | Thr | Met | Tyr | Ala | Leu | 965 | 970 | 975 | |
| Phe | Gln | Phe | Leu | Asp | Ile | Thr | Asp | Gln | Lys | Gln | Phe | Val | Glu | Ser | Trp | 980 | 985 | 990 | |
| Phe | Thr | Pro | Ile | Phe | Phe | Ser | Val | Gln | Lys | Gly | Ser | Ile | Ile | Cys | Lys | 995 | 1000 | 1005 | |
| Arg | Leu | Asp | Ala | Leu | Ile | Asp | Arg | Arg | Ile | Arg | Leu | Ala | Leu | Trp | Gly | 1010 | 1015 | 1020 | |
| Lys | Thr | Asp | Ile | Ala | His | Asp | Arg | Leu | Phe | Met | Thr | Leu | Gly | Ile | Asp | 1025 | 1030 | 1035 | 1040 |
| Pro | Glu | Val | Ile | Lys | Lys | Tyr | Phe | His | Asn | Thr | Ser | Leu | Lys | Thr | Lys | 1045 | 1050 | 1055 | |
| Asn | Phe | Phe | Leu | Ile | Lys | Ile | Arg | Gly | Ser | Ile | Ser | Ser | Pro | Glu | Val | 1060 | 1065 | 1070 | |
| Asp | Trp | Ser | Ser | Ala | Tyr | Ala | Arg | Ile | Ala | Leu | Leu | Lys | Ser | Tyr | Ser | 1075 | 1080 | 1085 | |
| | | | | | | | | | | | | | | | | 1090 | 1095 | 1100 | |

Leu Gly Asn Pro Phe Ser Ser Leu Ala Asp Lys Leu Phe Ser Ser Leu
 1105 1110 1115 1120
 Gly Asp Ser Thr Pro Pro Thr Val His Pro Phe Pro Trp Glu Lys
 1125 1130 1135
 Ser Asn Phe Asp Ser Ile Glu Asn Lys
 1140 1145

<210> 192
 <211> 458
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 192
 Leu Leu Gly Ile Lys Leu Met Arg Lys Arg His Ser Phe Asp Ser Thr
 1 5 10 15
 Ser Thr Lys Lys Glu Ala Val Ser Lys Ala Ile Gln Lys Ile Ile Lys
 20 25 30
 Ile Met Glu Thr Thr Asp Pro Ser Leu Asn Val Glu Thr Pro Asn Ala
 35 40 45
 Glu Ile Glu Ser Ile Leu Gln Glu Ile Lys Glu Ile Lys Gln Lys Leu
 50 55 60
 Ser Lys Gln Ala Glu Asp Leu Gly Leu Leu Glu Lys Tyr Cys Ser Gln
 65 70 75 80
 Glu Thr Leu Ser Asn Leu Glu Asn Thr Asn Ala Ser Leu Lys Leu Ser
 85 90 95
 Ile Gly Ser Val Ile Glu Glu Leu Ala Ser Leu Lys Gln Leu Val Glu
 100 105 110
 Glu Ser Ile Glu Glu Ser Leu Gly Gln Gln Asp Gln Leu Ile Gln Ser
 115 120 125
 Val Leu Ile Glu Ile Ser Asp Lys Phe Leu Ser Ser Ile Gly Glu Thr
 130 135 140
 Leu Ser Gly Asn Leu Asp Met Asn Gln Asn Val Ile Gln Gly Leu Leu
 145 150 155 160
 Ile Lys Glu Asn Pro Glu Lys Ser Glu Ala Ala Ser Val Gly Tyr Val
 165 170 175
 Gln Thr Leu Leu Glu Pro Leu Ser Lys Arg Ile Gly Glu Thr His Lys
 180 185 190
 Lys Val Ala Thr His Asp Val Asn Ile Ser Ser Leu Gln Phe His Met
 195 200 205
 Met Ser Val Ala Gly Gly Arg Phe Arg Gly His Ile Asp Met Asn Gly
 210 215 220
 Tyr Arg Val Leu Gly Leu Gly Glu Pro Lys Asn Gly Glu Asp Ala Val
 225 230 235 240
 Ser Lys Asp Tyr Leu Glu Arg Tyr Val Ser Ser Gln Leu Thr Ile Asp
 245 250 255
 Lys Val Glu Asp Lys Pro Ile Thr Lys Pro Asn Lys Gly Lys Leu Leu
 260 265 270
 Tyr Ser Gln Gly Thr Ser Pro Lys Leu Glu Ser Pro Leu Pro Leu Gly
 275 280 285
 Leu Leu Thr Ser Gly Ile Ser Gly Phe Thr Trp Lys Ser Ala Ser Lys
 290 295 300
 Ser Asn Asp Gly Ser Phe Pro Phe Ser Ala Leu Arg His Lys Glu Thr
 305 310 315 320
 Glu Ser Asp Thr Asp Cys Phe Gln Ile Thr Ser Thr Thr Leu Ser Gly
 325 330 335
 Asn Gln Ala Gly Thr Tyr Thr Trp Ser Leu Ser Leu Lys Val Leu Val
 340 345 350
 Pro Ser Ile Phe Gln Ile Glu Lys Pro Glu Val Gln Leu Ser Leu Val
 355 360 365
 Tyr Ser Tyr Glu Asp Trp Leu Pro Ile Asp Asn Ile Phe Asn Met Ser
 370 375 380

Gln Pro Arg Thr Ile Pro Leu Ala Leu Leu Gly Gln Thr Met Leu Ala
 385 390 395 400
 Gly Gln Lys Tyr Asp Ile Leu Glu Leu Ala Ala His Gln Thr Asn Gln
 405 410 415
 Thr Leu Met Ile Ser Pro Asn Cys Ser Arg Phe Ser Leu Gln Leu Lys
 420 425 430
 Gln Thr Asn Gln Phe Glu Asn Ser Pro Val Asp Phe Tyr Ile Val His
 435 440 445
 Ala Ala His Ser Cys His Trp Ser Gly Phe
 450 455

<210> 193
 <211> 242
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 193
 Gln His His Phe Pro Val Phe Leu Gly Tyr Gln Lys Arg Glu Gly Val
 1 5 10 15
 Met Thr Ile Arg Val Arg Asn Leu Ala Tyr Ser Val Asn Lys Lys Lys
 20 25 30
 Ile Leu Asp Gly Val Thr Phe Ser Leu Glu Arg Gly His Ile Thr Leu
 35 40 45
 Phe Val Gly Lys Ser Gly Ser Gly Lys Thr Met Ile Leu Arg Ala Leu
 50 55 60
 Ala Gly Leu Val Gln Pro Thr Gln Gly Asp Ile Trp Ile Glu Gly Glu
 65 70 75 80
 Ala Pro Ala Leu Val Phe Gln Gln Pro Glu Leu Phe Ser His Met Thr
 85 90 95
 Val Leu Gly Asn Cys Thr His Pro Gln Ile His Ile Lys Gly Arg Ser
 100 105 110
 Thr Glu Glu Ala Arg Glu Lys Ala Phe Glu Leu Leu His Leu Leu Asp
 115 120 125
 Ile Glu Glu Val Ala Lys Asn Tyr Pro Asp Gln Leu Ser Gly Gly Gln
 130 135 140
 Lys Gln Arg Val Ala Ile Val Arg Ser Leu Cys Met Asp Lys His Thr
 145 150 155 160
 Leu Leu Phe Asp Glu Pro Thr Ser Ala Leu Asp Pro Phe Ala Thr Ala
 165 170 175
 Ser Phe Arg His Leu Leu Glu Thr Leu Arg Asp Gln Glu Leu Thr Val
 180 185 190
 Gly Leu Thr Thr His Asp Met Gln Phe Val His Ser Cys Leu Asp Arg
 195 200 205
 Ile Tyr Leu Ile Asp Gln Gly Thr Val Ala Gly Val Tyr Asp Lys Arg
 210 215 220
 Asp Gly Glu Leu Asp Ser Gly His Pro Leu Ser Lys Tyr Ile His Ser
 225 230 235 240
 Ala Gln

<210> 194
 <211> 220
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 194
 Glu Val Gly Val Asp His Trp Leu Ala Ile Ala Arg Leu Leu Leu Arg
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 Gly Cys Gly Tyr Thr Leu Cys Val Ser Gly Ile Gly Ile Leu Cys Gly
 20 25 30

Ser Ile Leu Gly Leu Leu Ile Gly Thr Val Thr Ser Leu Tyr Phe Pro
 35 40 45
 Ser Lys Leu Thr Lys Leu Leu Ala Asn Ser Tyr Val Thr Val Ile Arg
 50 55 60
 Gly Thr Pro Leu Phe Ile Gln Ile Leu Ile Ile Tyr Phe Gly Leu Pro
 65 70 75 80
 Glu Val Leu Pro Ile Glu Pro Thr Pro Leu Val Ala Gly Ile Ile Ala
 85 90 95
 Leu Ser Met Asn Ser Ala Ala Tyr Leu Ala Glu Asn Ile Arg Gly Gly
 100 105 110
 Ile Asn Ser Leu Ser Ile Gly Gln Trp Glu Ser Ala Met Val Leu Gly
 115 120 125
 Tyr Lys Lys Tyr Gln Ile Phe Val Tyr Ile Ile Tyr Pro Gln Val Phe
 130 135 140
 Lys Asn Ile Leu Pro Ser Leu Thr Asn Glu Phe Val Ser Leu Ile Lys
 145 150 155 160
 Glu Ser Ser Ile Leu Met Val Val Gly Val Pro Glu Leu Thr Lys Val
 165 170 175
 Thr Lys Asp Ile Val Ser Arg Glu Leu Asn Pro Met Glu Met Tyr Leu
 180 185 190
 Ile Cys Ala Gly Leu Tyr Phe Leu Met Thr Thr Ser Phe Ser Cys Ile
 195 200 205
 Ser Arg Leu Ser Glu Lys Arg Arg Ser Tyr Asp Asn
 210 215 220

<210> 195

<211> 153

<212> PRT

<213> Chlamydia pneumoniae

<400> 195

Lys Leu His Gly Val Phe Met Lys Lys Lys Val Thr Ile Asp Glu Ala
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 Leu Lys Glu Ile Leu Arg Leu Glu Gly Ala Ala Thr Gln Glu Glu Leu
 20 25 30
 Cys Ala Lys Leu Leu Ala Gln Gly Phe Ala Thr Thr Gln Ser Ser Val
 35 40 45
 Ser Arg Trp Leu Arg Lys Ile Gln Ala Val Lys Val Ala Gly Glu Arg
 50 55 60
 Gly Ala Arg Tyr Ser Leu Pro Ser Ser Thr Glu Lys Thr Thr Thr Arg
 65 70 75 80
 His Leu Val Leu Ser Ile Arg His Asn Ala Ser Leu Ile Val Ile Arg
 85 90 95
 Thr Val Pro Gly Ser Ala Ser Trp Ile Ala Ala Leu Leu Asp Gln Gly
 100 105 110
 Leu Lys Asp Glu Ile Leu Gly Thr Leu Ala Gly Asp Asp Thr Ile Phe
 115 120 125
 Val Thr Pro Ile Asp Glu Gly Arg Leu Pro Leu Leu Met Val Ser Ile
 130 135 140
 Ala Asn Leu Leu Gln Val Phe Leu Asp
 145 150

<210> 196

<211> 360

<212> PRT

<213> Chlamydia pneumoniae

<400> 196

Glu Val Pro His Thr Ile Lys Gly Asn Val Phe Phe Ser Trp Phe Phe
 1 5 10 15

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Met | Leu | Thr | Leu | Gly | Leu | Glu | Ser | Ser | Cys | Asp | Glu | Thr | Ala | Cys | Ala | | |
| | | | 20 | | | | | 25 | | | | | 30 | | | | |
| Ile | Val | Asn | Glu | Asp | Lys | Gln | Ile | Leu | Ala | Asn | Ile | Ile | Ala | Ser | Gln | | |
| | | 35 | | | | 40 | | | | | | 45 | | | | | |
| Asp | Ile | His | Ala | Ser | Tyr | Gly | Gly | Val | Val | Pro | Glu | Leu | Ala | Ser | Arg | | |
| | 50 | | | | | 55 | | | | | 60 | | | | | | |
| Ala | His | Leu | His | Ile | Phe | Pro | Gln | Val | Ile | Asn | Lys | Ala | Leu | Gln | Gln | | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | | |
| Ala | Asn | Leu | Leu | Ile | Glu | Asp | Met | Asp | Leu | Ile | Ala | Val | Thr | Gln | Thr | | |
| | | | | 85 | | | | | 90 | | | | | 95 | | | |
| Pro | Gly | Leu | Ile | Gly | Ser | Leu | Ser | Val | Gly | Val | His | Phe | Gly | Lys | Gly | | |
| | | 100 | | | | | | 105 | | | | | 110 | | | | |
| Ile | Ala | Ile | Gly | Ala | Lys | Lys | Ser | Leu | Ile | Gly | Val | Asn | His | Val | Glu | | |
| | | 115 | | | | | 120 | | | | | 125 | | | | | |
| Ala | His | Leu | Tyr | Ala | Ala | Tyr | Met | Ala | Ala | Gln | Asn | Val | Gln | Phe | Pro | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | |
| Ala | Leu | Gly | Leu | Val | Val | Ser | Gly | Ala | His | Thr | Ala | Ala | Phe | Phe | Ile | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |
| Glu | Asn | Pro | Thr | Ser | Tyr | Lys | Leu | Ile | Gly | Lys | Thr | Arg | Asp | Asp | Ala | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | |
| Ile | Gly | Glu | Thr | Phe | Asp | Lys | Val | Gly | Arg | Phe | Leu | Gly | Leu | Pro | Tyr | | |
| | | 180 | | | | | | 185 | | | | | 190 | | | | |
| Pro | Ala | Gly | Pro | Leu | Ile | Glu | Lys | Leu | Ala | Leu | Glu | Gly | Ser | Glu | Asp | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| Ser | Tyr | Pro | Phe | Ser | Pro | Ala | Lys | Val | Pro | Asn | Tyr | Asp | Phe | Ser | Phe | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| Ser | Gly | Leu | Lys | Thr | Ala | Val | Leu | Tyr | Ala | Ile | Lys | Gly | Asn | Asn | Ser | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| Ser | Pro | Arg | Ser | Pro | Ala | Pro | Glu | Ile | Ser | Leu | Glu | Lys | Gln | Arg | Asp | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |
| Ile | Ala | Ala | Ser | Phe | Gln | Lys | Ala | Ala | Cys | Thr | Thr | Ile | Ala | Gln | Lys | | |
| | | 260 | | | | | 265 | | | | | | 270 | | | | |
| Leu | Pro | Thr | Ile | Ile | Lys | Glu | Phe | Ser | Cys | Arg | Ser | Ile | Leu | Ile | Gly | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | |
| Gly | Gly | Val | Ala | Ile | Asn | Glu | Tyr | Phe | Arg | Ser | Ala | Ile | Gln | Thr | Ala | | |
| | 290 | | | | 295 | | | | | | 300 | | | | | | |
| Cys | Asn | Leu | Pro | Val | Tyr | Phe | Pro | Pro | Ala | Lys | Leu | Cys | Ser | Asp | Asn | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | |
| Ala | Ala | Met | Ile | Ala | Gly | Leu | Gly | Gly | Glu | Asn | Phe | Gln | Lys | Asn | Ser | | |
| | | | | 325 | | | | | 330 | | | | | 335 | | | |
| Ser | Ile | Pro | Glu | Ile | Arg | Ile | Cys | Ala | Arg | Tyr | Gln | Trp | Glu | Ser | Val | | |
| | | 340 | | | | | 345 | | | | | | 350 | | | | |
| Ser | Pro | Phe | Ser | Leu | Ala | Ser | Pro | | | | | | | | | | |
| | | 355 | | | | | 360 | | | | | | | | | | |

<210> 197

<211> 538

<212> PRT

<213> Chlamydia pneumoniae

<400> 197

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Tyr | Ser | Gly | Asn | Ser | Tyr | Met | Arg | Lys | Ile | Ser | Val | Gly | Ile | Cys | Ile | | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | | |
| Thr | Ile | Leu | Leu | Ser | Leu | Ser | Val | Val | Leu | Gln | Gly | Cys | Lys | Glu | Ser | | |
| | | 20 | | | | | 25 | | | | | | 30 | | | | |
| Ser | His | Ser | Ser | Thr | Ser | Arg | Gly | Glu | Leu | Ala | Ile | Asn | Ile | Arg | Asp | | |
| | | 35 | | | | 40 | | | | | 45 | | | | | | |
| Glu | Pro | Arg | Ser | Leu | Asp | Pro | Arg | Gln | Val | Arg | Leu | Leu | Ser | Glu | Ile | | |
| | 50 | | | | 55 | | | | | 60 | | | | | | | |
| Ser | Leu | Val | Lys | His | Ile | Tyr | Glu | Gly | Leu | Val | Gln | Glu | Asn | Asn | Leu | | |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 | | |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Ser | Gly | Asn | Ile | Glu | Pro | Ala | Leu | Ala | Glu | Asp | Tyr | Ser | Leu | Ser | Ser | | |
| | | | | 85 | | | | | 90 | | | | | 95 | | | |
| Asp | Gly | Leu | Thr | Tyr | Thr | Phe | Lys | Leu | Lys | Ser | Ala | Phe | Trp | Ser | Asn | | |
| | | | 100 | | | | | 105 | | | | | 110 | | | | |
| Gly | Asp | Pro | Leu | Thr | Ala | Glu | Asp | Phe | Ile | Glu | Ser | Trp | Lys | Gln | Val | | |
| | | 115 | | | | | 120 | | | | | 125 | | | | | |
| Ala | Thr | Gln | Glu | Val | Ser | Gly | Ile | Tyr | Ala | Phe | Ala | Leu | Asn | Pro | Ile | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | |
| Lys | Asn | Val | Arg | Lys | Ile | Gln | Glu | Gly | His | Leu | Ser | Ile | Asp | His | Phe | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |
| Gly | Val | His | Ser | Pro | Asn | Glu | Ser | Thr | Leu | Val | Val | Thr | Leu | Glu | Ser | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | |
| Pro | Thr | Ser | His | Phe | Leu | Lys | Leu | Leu | Ala | Leu | Pro | Val | Phe | Phe | Pro | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| Val | His | Lys | Ser | Gln | Arg | Thr | Leu | Gln | Ser | Lys | Ser | Leu | Pro | Ile | Ala | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| Ser | Gly | Ala | Phe | Tyr | Pro | Lys | Asn | Ile | Lys | Gln | Lys | Gln | Trp | Ile | Lys | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| Leu | Ser | Lys | Asn | Pro | His | Tyr | Tyr | Asn | Gln | Ser | Gln | Val | Glu | Thr | Lys | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| Thr | Ile | Thr | Ile | His | Phe | Ile | Pro | Asp | Ala | Asn | Thr | Ala | Ala | Lys | Leu | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |
| Phe | Asn | Gln | Gly | Lys | Leu | Asn | Trp | Gln | Gly | Pro | Pro | Trp | Gly | Glu | Arg | | |
| | | 260 | | | | | | 265 | | | | | 270 | | | | |
| Ile | Pro | Gln | Glu | Thr | Leu | Ser | Asn | Leu | Gln | Ser | Lys | Gly | His | Leu | His | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | |
| Ser | Phe | Asp | Val | Ala | Gly | Thr | Ser | Trp | Leu | Thr | Phe | Asn | Ile | Asn | Lys | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| Phe | Pro | Leu | Asn | Asn | Met | Lys | Leu | Arg | Glu | Ala | Leu | Ala | Ser | Ala | Leu | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | |
| Asp | Lys | Glu | Ala | Leu | Val | Ser | Thr | Ile | Phe | Leu | Gly | Arg | Ala | Lys | Thr | | |
| | | | | 325 | | | | | 330 | | | | 335 | | | | |
| Ala | Asp | His | Leu | Leu | Pro | Thr | Asn | Ile | His | Ser | Tyr | Pro | Glu | His | Gln | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | |
| Lys | Gln | Glu | Met | Ala | Gln | Arg | Gln | Ala | Tyr | Ala | Lys | Lys | Leu | Phe | Lys | | |
| | | 355 | | | | | 360 | | | | | 365 | | | | | |
| Glu | Ala | Leu | Glu | Glu | Leu | Gln | Ile | Thr | Ala | Lys | Asp | Leu | Glu | His | Leu | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | |
| Asn | Leu | Ile | Phe | Pro | Val | Ser | Ser | Ser | Ala | Ser | Ser | Leu | Leu | Val | Gln | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | |
| Leu | Ile | Arg | Glu | Gln | Trp | Lys | Glu | Ser | Leu | Gly | Phe | Ala | Ile | Pro | Ile | | |
| | | | | 405 | | | | | 410 | | | | | 415 | | | |
| Val | Gly | Lys | Glu | Phe | Ala | Leu | Leu | Gln | Ala | Asp | Leu | Ser | Ser | Gly | Asn | | |
| | | | 420 | | | | | 425 | | | | | 430 | | | | |
| Phe | Ser | Leu | Ala | Thr | Gly | Gly | Trp | Phe | Ala | Asp | Phe | Ala | Asp | Pro | Met | | |
| | | 435 | | | | | 440 | | | | | 445 | | | | | |
| Ala | Phe | Leu | Thr | Ile | Phe | Ala | Tyr | Pro | Ser | Gly | Val | Pro | Pro | Tyr | Ala | | |
| | 450 | | | | | 455 | | | | | 460 | | | | | | |
| Ile | Asn | His | Lys | Asp | Phe | Leu | Glu | Ile | Leu | Gln | Asn | Ile | Glu | Gln | Glu | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | |
| Gln | Asp | His | Gln | Lys | Arg | Ser | Glu | Leu | Val | Ser | Gln | Ala | Ser | Leu | Tyr | | |
| | | | | 485 | | | | | 490 | | | | | 495 | | | |
| Leu | Glu | Thr | Phe | His | Ile | Ile | Glu | Pro | Ile | Tyr | His | Asp | Ala | Phe | Gln | | |
| | | | 500 | | | | | 505 | | | | | 510 | | | | |
| Phe | Ala | Met | Asn | Lys | Lys | Leu | Ser | Asn | Leu | Gly | Val | Ser | Pro | Thr | Gly | | |
| | | 515 | | | | | 520 | | | | | 525 | | | | | |
| Val | Val | Asp | Phe | Arg | Tyr | Ala | Lys | Glu | Asn | | | | | | | | |
| | 530 | | | | | 535 | | | | | | | | | | | |

<210> 198
 <211> 538
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 198
 Lys Leu Lys Ser Tyr Ser Lys Glu Arg Ser Phe Met Leu Arg Phe Phe
 1 5 10 15
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 20 25 30
 Ser Gln Ser Ser Lys Gly Ile Phe Val Val Asn Met Lys Glu Met Pro
 35 40 45
 Arg Ser Leu Asp Pro Gly Lys Thr Arg Leu Ile Ala Asp Gln Thr Leu
 50 55 60
 Met Arg His Leu Tyr Glu Gly Leu Val Glu Glu His Ser Gln Asn Gly
 65 70 75 80
 Glu Ile Lys Pro Ala Leu Ala Glu Ser Tyr Thr Ile Ser Glu Asp Gly
 85 90 95
 Thr Arg Tyr Thr Phe Lys Ile Lys Asn Ile Leu Trp Ser Asn Gly Asp
 100 105 110
 Pro Leu Thr Ala Gln Asp Phe Val Ser Ser Trp Lys Glu Ile Leu Lys
 115 120 125
 Glu Asp Ala Ser Ser Val Tyr Leu Tyr Ala Phe Leu Pro Ile Lys Asn
 130 135 140
 Ala Arg Ala Ile Phe Asp Asp Thr Glu Ser Pro Glu Asn Leu Gly Val
 145 150 155 160
 Arg Ala Leu Asp Lys Arg His Leu Glu Ile Gln Leu Glu Thr Pro Cys
 165 170 175
 Ala His Phe Leu His Phe Leu Thr Leu Pro Ile Phe Phe Pro Val His
 180 185 190
 Glu Thr Leu Arg Asn Tyr Ser Thr Ser Phe Glu Glu Met Pro Ile Thr
 195 200 205
 Cys Gly Ala Phe Arg Pro Val Ser Leu Glu Lys Gly Leu Arg Leu His
 210 215 220
 Leu Glu Lys Asn Pro Met Tyr His Asn Lys Ser Arg Val Lys Leu His
 225 230 235 240
 Lys Ile Ile Val Gln Phe Ile Ser Asn Ala Asn Thr Ala Ala Ile Leu
 245 250 255
 Phe Lys His Lys Lys Leu Asp Trp Gln Gly Pro Pro Trp Gly Glu Pro
 260 265 270
 Ile Pro Pro Glu Ile Ser Ala Ser Leu His Gln Asp Asp Gln Leu Phe
 275 280 285
 Ser Leu Pro Gly Ala Ser Thr Thr Trp Leu Leu Phe Asn Ile Gln Lys
 290 295 300
 Lys Pro Trp Asn Asn Ala Lys Leu Arg Lys Ala Leu Ser Leu Ala Ile
 305 310 315 320
 Asp Lys Asp Met Leu Thr Lys Val Val Tyr Gln Gly Leu Ala Glu Pro
 325 330 335
 Thr Asp His Ile Leu His Pro Arg Leu Tyr Pro Gly Thr Tyr Pro Glu
 340 345 350
 Arg Lys Arg Gln Asn Glu Arg Ile Leu Glu Ala Gln Gln Leu Phe Glu
 355 360 365
 Glu Ala Leu Asp Glu Leu Gln Met Thr Arg Glu Asp Leu Glu Lys Glu
 370 375 380
 Thr Leu Thr Phe Ser Thr Phe Ser Phe Ser Tyr Gly Arg Ile Cys Gln
 385 390 395 400
 Met Leu Arg Glu Gln Trp Lys Lys Val Leu Lys Phe Thr Ile Pro Ile
 405 410 415
 Val Gly Gln Glu Phe Phe Thr Ile Gln Lys Asn Phe Leu Glu Gly Asn
 420 425 430

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Ser | Leu | Thr | Val | Asn | Gln | Trp | Thr | Ala | Ala | Phe | Ile | Asp | Pro | Met |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Ser | Tyr | Leu | Met | Ile | Phe | Ala | Asn | Pro | Gly | Gly | Ile | Ser | Pro | Tyr | His |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Leu | Gln | Asp | Ser | His | Phe | Gln | Thr | Leu | Leu | Ile | Lys | Ile | Thr | Gln | Glu |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| His | Lys | Lys | His | Leu | Arg | Asn | Gln | Leu | Ile | Ile | Glu | Ala | Leu | Asp | Tyr |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Leu | Glu | His | Cys | His | Ile | Leu | Glu | Pro | Leu | Cys | His | Pro | Asn | Leu | Arg |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Ile | Ala | Leu | Asn | Lys | Asn | Ile | Lys | Asn | Phe | Asn | Leu | Phe | Val | Arg | Arg |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Thr | Ser | Asp | Phe | Arg | Phe | Ile | Glu | Lys | Leu | | | | | | |
| | 530 | | | | | 535 | | | | | | | | | |

<210> 199

<211> 457

<212> PRT

<213> Chlamydia pneumoniae

<400> 199

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Asn | Tyr | Arg | Arg | Lys | Ser | Leu | Asp | Leu | Lys | Phe | Asp | Ser | Lys | Phe |
| 1 | | | 5 | | | | | | 10 | | | | | 15 | |
| Ile | Lys | Val | Ile | Phe | Lys | Met | Phe | Ser | Arg | Trp | Ile | Thr | Leu | Phe | Leu |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Leu | Phe | Ile | Ser | Leu | Thr | Gly | Cys | Ser | Ser | Tyr | Ser | Ser | Lys | His | Lys |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Gln | Ser | Leu | Ile | Ile | Pro | Ile | His | Asp | Asp | Pro | Val | Ala | Phe | Ser | Pro |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Glu | Gln | Ala | Lys | Arg | Ala | Met | Asp | Leu | Ser | Ile | Ala | Gln | Leu | Leu | Phe |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Asp | Gly | Leu | Thr | Arg | Glu | Thr | His | Arg | Glu | Ser | Asn | Asp | Leu | Glu | Leu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Ile | Ala | Ser | Arg | Tyr | Thr | Val | Ser | Glu | Asp | Phe | Cys | Ser | Tyr | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Phe | Phe | Ile | Lys | Asp | Ser | Ala | Leu | Trp | Ser | Asp | Gly | Thr | Pro | Ile | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ser | Glu | Asp | Ile | Arg | Asn | Ala | Trp | Glu | Tyr | Ala | Gln | Glu | Asn | Ser | Pro |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| His | Ile | Gln | Ile | Phe | Gln | Gly | Leu | Asn | Phe | Ser | Thr | Pro | Ser | Ser | Asn |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | Ile | Thr | Ile | His | Leu | Asp | Ser | Pro | Asn | Pro | Asp | Phe | Pro | Lys | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Ala | Phe | Pro | Ala | Phe | Ala | Ile | Phe | Lys | Pro | Glu | Asn | Pro | Lys | Leu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Phe | Ser | Gly | Pro | Tyr | Thr | Leu | Val | Glu | Tyr | Phe | Pro | Gly | His | Asn | Ile |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| His | Leu | Lys | Lys | Asn | Pro | Asn | Tyr | Tyr | Asp | Tyr | His | Cys | Val | Ser | Ile |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Asn | Ser | Ile | Lys | Leu | Leu | Ile | Ile | Pro | Asp | Ile | Tyr | Thr | Ala | Ile | His |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Leu | Asn | Arg | Gly | Lys | Val | Asp | Trp | Val | Gly | Gln | Pro | Trp | His | Gln |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Gly | Ile | Pro | Trp | Glu | Leu | His | Lys | Gln | Ser | Gln | Tyr | His | Tyr | Tyr | Thr |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Tyr | Pro | Val | Glu | Gly | Ala | Phe | Trp | Leu | Cys | Leu | Asn | Thr | Lys | Ser | Pro |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| His | Leu | Asn | Asp | Leu | Gln | Asn | Arg | His | Arg | Leu | Ala | Thr | Cys | Ile | Asp |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Lys | Arg | Ser | Ile | Ile | Glu | Glu | Ala | Leu | Gln | Gly | Thr | Gln | Gln | Pro | Ala |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |

Glu Thr Leu Ser Arg Gly Ala Pro Gln Pro Asn Gln Tyr Lys Lys Gln
 325 330 335
 Lys Pro Leu Thr Pro Gln Glu Lys Leu Val Leu Thr Tyr Pro Ser Asp
 340 345 350
 Ile Leu Arg Cys Gln Arg Ile Ala Glu Ile Leu Lys Glu Gln Trp Lys
 355 360 365
 Ala Ala Gly Ile Asp Leu Ile Leu Glu Gly Leu Glu Tyr His Leu Phe
 370 375 380
 Val Asn Lys Arg Lys Val Gln Asp Tyr Ala Ile Ala Thr Gln Thr Gly
 385 390 395 400
 Val Ala Tyr Tyr Pro Gly Ala Asn Leu Ile Ser Glu Glu Asp Lys Leu
 405 410 415
 Leu Gln Asn Phe Glu Ile Ile Pro Ile Tyr Tyr Leu Ser Tyr Asp Tyr
 420 425 430
 Leu Thr Gln Asp Phe Ile Glu Gly Val Ile Tyr Asn Ala Ser Gly Ala
 435 440 445
 Val Asp Leu Lys Tyr Thr Tyr Phe Pro
 450 455

<210> 200
 <211> 534
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 200
 Gln Ile Glu Tyr Tyr Ile Met Lys Met His Arg Leu Lys Pro Thr Leu
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 Lys Ser Leu Ile Pro Asn Leu Leu Phe Leu Leu Leu Thr Leu Ser Ser
 20 25 30
 Cys Ser Lys Gln Lys Gln Glu Pro Leu Gly Lys His Leu Val Ile Ala
 35 40 45
 Met Ser His Asp Leu Ala Asp Leu Asp Pro Arg Asn Ala Tyr Leu Ser
 50 55 60
 Arg Asp Ala Ser Leu Ala Lys Ala Leu Tyr Glu Gly Leu Thr Arg Glu
 65 70 75 80
 Thr Asp Gln Gly Ile Ala Leu Ala Leu Glu Ser Tyr Thr Leu Ser
 85 90 95
 Lys Asp His Lys Val Tyr Thr Phe Lys Leu Arg Pro Ser Val Trp Ser
 100 105 110
 Asp Gly Thr Pro Leu Thr Ala Tyr Asp Phe Glu Lys Ser Ile Lys Gln
 115 120 125
 Leu Tyr Phe Glu Glu Phe Ser Pro Ser Ile His Thr Leu Leu Gly Val
 130 135 140
 Ile Lys Asn Ser Ser Ala Ile His Asn Ala Gln Lys Ser Leu Glu Thr
 145 150 155 160
 Leu Gly Ile Gln Ala Lys Asp Asp Leu Thr Leu Val Ile Thr Leu Glu
 165 170 175
 Gln Pro Phe Pro Tyr Phe Leu Thr Leu Ile Ala Arg Pro Val Phe Ser
 180 185 190
 Pro Val His His Thr Leu Arg Glu Ser Tyr Lys Lys Gly Thr Pro Pro
 195 200 205
 Ser Thr Tyr Ile Ser Asn Gly Pro Phe Val Leu Lys Lys His Glu His
 210 215 220
 Gln Asn Tyr Leu Ile Leu Glu Lys Asn Pro His Tyr Tyr Asp His Glu
 225 230 235 240
 Ser Val Lys Leu Asp Arg Val Thr Leu Lys Ile Ile Pro Asp Ala Ser
 245 250 255
 Thr Ala Thr Lys Leu Phe Lys Ser Lys Ser Ile Asp Trp Ile Gly Ser
 260 265 270
 Pro Trp Ser Ala Pro Ile Ser Asn Glu Asp Gln Lys Val Leu Ser Gln
 275 280 285

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Lys | Ile | Leu | Thr | Tyr | Ser | Val | Ser | Ser | Thr | Thr | Leu | Leu | Ile | Tyr |
| 290 | | | | | | 295 | | | | | 300 | | | | |
| Asn | Leu | Gln | Lys | Pro | Leu | Ile | Gln | Asn | Lys | Ala | Leu | Arg | Lys | Ala | Ile |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Ala | His | Ala | Ile | Asp | Arg | Lys | Ser | Ile | Leu | Arg | Leu | Val | Pro | Ser | Gly |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Gln | Glu | Ala | Val | Thr | Leu | Val | Pro | Pro | Asn | Leu | Ser | Gln | Leu | Asn | Leu |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Gln | Lys | Glu | Ile | Ser | Thr | Glu | Glu | Arg | Gln | Thr | Lys | Ala | Arg | Ala | Tyr |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Phe | Gln | Glu | Ala | Lys | Glu | Thr | Leu | Ser | Glu | Lys | Glu | Leu | Ala | Glu | Leu |
| 370 | | | | | 375 | | | | | | 380 | | | | |
| Ser | Ile | Leu | Tyr | Pro | Ile | Asp | Ser | Ser | Asn | Ser | Ser | Ile | Ile | Ala | Gln |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Glu | Ile | Gln | Arg | Gln | Leu | Lys | Asp | Thr | Leu | Gly | Leu | Lys | Ile | Lys | Ile |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Gln | Gly | Met | Glu | Tyr | His | Cys | Phe | Leu | Lys | Lys | Arg | Arg | Gln | Gly | Asp |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Phe | Phe | Ile | Ala | Thr | Gly | Gly | Trp | Ile | Ala | Glu | Tyr | Val | Ser | Pro | Val |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Ala | Phe | Leu | Ser | Ile | Leu | Gly | Asn | Pro | Arg | Asp | Leu | Thr | Gln | Trp | Arg |
| | | 450 | | | | 455 | | | | | 460 | | | | |
| Asn | Ser | Asp | Tyr | Glu | Lys | Thr | Leu | Glu | Lys | Leu | Tyr | Leu | Pro | His | Ala |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Tyr | Lys | Glu | Asn | Leu | Lys | Arg | Ala | Glu | Met | Ile | Ile | Glu | Glu | Glu | Thr |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Pro | Ile | Ile | Pro | Leu | Tyr | His | Gly | Lys | Tyr | Ile | Tyr | Ala | Ile | His | Pro |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Lys | Ile | Gln | Asn | Thr | Phe | Gly | Ser | Leu | Leu | Gly | His | Thr | Asp | Leu | Lys |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Asn | Ile | Asp | Ile | Leu | Ser | | | | | | | | | | |
| 530 | | | | | | | | | | | | | | | |

<210> 201
 <211> 322
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 201 | | | | | | | | | | | | | | | |
| Lys | Cys | Leu | Ile | Gly | Leu | Ser | Leu | Val | Phe | Ser | Tyr | Ile | Lys | Asn | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Leu | Phe | Asn | Leu | Leu | Ser | Leu | Trp | Ile | Val | Leu | Thr | Leu | Thr | Phe |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Val | Met | Lys | Thr | Ile | Pro | Gly | Asp | Pro | Phe | Asn | Asp | Glu | Gly | Cys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Asn | Val | Leu | Ser | Glu | Glu | Val | Leu | Gln | Thr | Leu | Lys | Ser | Arg | Tyr | Gly |
| | | 50 | | | | 55 | | | | | 60 | | | | |
| Leu | Asp | Lys | Pro | Leu | Tyr | Gln | Gln | Tyr | Thr | Gln | Tyr | Leu | His | Ser | Ile |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ala | Lys | Leu | Asp | Phe | Gly | Asn | Ser | Leu | Val | Tyr | Lys | Asp | Arg | Lys | Val |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Thr | Asn | Ile | Ile | Ser | Thr | Ala | Phe | Pro | Ile | Ser | Ala | Ile | Leu | Gly | Leu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gln | Ser | Leu | Phe | Leu | Ser | Ile | Gly | Gly | Gly | Ile | Ala | Leu | Gly | Thr | Ile |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ala | Ala | Leu | Lys | Lys | Lys | Lys | Gln | Arg | Arg | Tyr | Ile | Leu | Gly | Ala | Ser |
| | | 130 | | | | | 135 | | | | 140 | | | | |
| Ile | Leu | Gln | Ile | Ser | Ile | Pro | Ala | Phe | Ile | Phe | Ala | Thr | Leu | Leu | Gln |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Tyr | Val | Phe | Ala | Val | Lys | Ile | Pro | Leu | Leu | Pro | Ile | Ala | Cys | Trp | Gly |
| | | | | 165 | | | | | 170 | | | | | 175 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Phe | Thr | His | Thr | Ile | Leu | Pro | Thr | Leu | Ala | Leu | Ala | Val | Thr | Pro |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Met | Ala | Phe | Ile | Ile | Gln | Leu | Thr | Tyr | Ser | Ser | Val | Ser | Ala | Ala | Leu |
| | | 195 | | | | 200 | | | | | | 205 | | | |
| Asn | Lys | Asp | Tyr | Val | Leu | Leu | Ala | Tyr | Ala | Lys | Gly | Leu | Ser | Pro | Leu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Lys | Val | Val | Ile | Lys | His | Ile | Leu | Pro | Tyr | Ala | Ile | Phe | Pro | Thr | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ser | Tyr | Ser | Ala | Phe | Leu | Thr | Thr | Thr | Val | Ile | Thr | Gly | Thr | Phe | Ala |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Ile | Glu | Asn | Ile | Phe | Cys | Ile | Pro | Gly | Leu | Gly | Lys | Trp | Phe | Ile | Cys |
| | | 260 | | | | | 265 | | | | | | 270 | | |
| Ser | Ile | Lys | Gln | Arg | Asp | Tyr | Pro | Val | Ala | Leu | Gly | Leu | Ser | Val | Phe |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Tyr | Gly | Thr | Leu | Phe | Met | Leu | Ser | Ser | Leu | Leu | Ser | Asp | Leu | Ile | Gln |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ser | Ile | Ile | Asp | Pro | Gln | Ile | Arg | Tyr | Ala | His | Gly | Lys | Glu | Lys | Lys |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Arg | Lys | | | | | | | | | | | | | | |

<210> 202
 <211> 291
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 202

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Lys | Lys | Lys | His | Lys | Leu | Met | Glu | Asn | Leu | Ser | Ser | Ala | Pro | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Arg | Ser | Ile | Trp | Lys | Ser | Ile | Ile | Gln | Asn | Lys | Met | Leu | Val | Leu | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Thr | Thr | Leu | Ile | Ile | Leu | Met | Leu | Gly | Ala | Leu | Leu | Leu | Pro | Trp |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Phe | Tyr | Gln | Asp | Tyr | Glu | Gln | Thr | Ser | Leu | Lys | Asp | Ile | Leu | Val | Ser |
| 50 | | | | | 55 | | | | | | 60 | | | | |
| Pro | Cys | Ser | Arg | Phe | Pro | Phe | Gly | Thr | Asp | Thr | Leu | Gly | Arg | Cys | Met |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Phe | Ala | Arg | Thr | Leu | Arg | Gly | Leu | Arg | Leu | Ser | Leu | Leu | Ile | Ala | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ile | Ala | Thr | Leu | Ile | Asp | Val | Cys | Val | Gly | Leu | Leu | Trp | Ala | Thr | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ala | Ile | Ser | Gly | Gly | Lys | Lys | Ile | Asp | Phe | Leu | Met | Met | Arg | Thr | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Glu | Ile | Leu | Phe | Ser | Leu | Pro | Arg | Ile | Pro | Ile | Ile | Ile | Leu | Leu | Leu |
| 130 | | | | | | 135 | | | | | 140 | | | | |
| Val | Ile | Phe | His | His | Gly | Leu | Leu | Pro | Leu | Ile | Leu | Ala | Met | Thr | Ile |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Thr | Gly | Trp | Ile | Pro | Ile | Ser | Arg | Ile | Ile | Tyr | Gly | Gln | Phe | Leu | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Lys | Asn | Lys | Pro | Phe | Val | Leu | Ser | Ala | Lys | Ala | Met | His | Ala | Ser |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Thr | Phe | His | Ile | Leu | Lys | Lys | His | Leu | Leu | Pro | Asn | Thr | Leu | Ala | Pro |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ile | Ile | Ser | Thr | Leu | Ile | Phe | Thr | Ile | Pro | Asn | Ala | Ile | Tyr | Thr | Glu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ala | Phe | Ile | Ser | Phe | Leu | Gly | Leu | Gly | Ile | Gln | Pro | Pro | Gln | Ala | Ser |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Gly | Thr | Leu | Val | Lys | Glu | Gly | Ile | Asn | Ala | Ile | Asp | Tyr | Tyr | Pro |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Trp | Leu | Phe | Phe | Phe | Pro | Ser | Leu | Ile | Met | Ile | Ala | Leu | Ser | Ile | Ser |
| | | | 260 | | | | | 265 | | | | | 270 | | |

Phe Asn Leu Ile Gly Glu Gly Ala Lys Thr Leu Cys Leu Glu Glu Gly
 275 280 285
 Ser His Gly
 290

<210> 203
 <211> 302
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 203
 Ala Ser Ile Ser Ser Ala Arg Gly Leu Lys His Tyr Val Ser Lys Arg
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 Asp Leu Met Asp Asn Tyr Leu Leu Asn Ile Lys Asp Leu Thr Ile Thr
 20 25 30
 Ser Thr Asn Pro Lys Arg Thr Leu Ile Glu Asn Leu Ser Leu Gln Leu
 35 40 45
 Lys Glu Asn Arg Asn Leu Ala Leu Val Gly Glu Ser Gly Ser Gly Lys
 50 55 60
 Thr Thr Ile Thr Lys Ala Ile Leu Gly Phe Leu Pro Glu Asn Cys Leu
 65 70 75 80
 Ile Lys Thr Gly Ser Ile Leu Phe Glu Asp Ile Asp Ile Thr Lys Leu
 85 90 95
 Ser Pro Lys Glu Leu His Lys Ile Arg Gly Gln Lys Ile Ala Thr Ile
 100 105 110
 Leu Gln Asn Ala Met Gly Ser Leu Thr Pro Ser Met Arg Ile Gly Met
 115 120 125
 Gln Ile Ile Glu Thr Leu Arg Gln His His Lys Met Asn Lys Glu Glu
 130 135 140
 Ala Tyr Asn Lys Ala Met Gln Leu Leu Thr Asp Val Cys Ile Pro Asn
 145 150 155 160
 Pro Lys Tyr Ser Phe Ser Gln Tyr Pro Phe Glu Leu Ser Gly Gly Met
 165 170 175
 Arg Gln Arg Val Val Ile Ala Ile Ala Leu Ala Ser Gln Pro Lys Leu
 180 185 190
 Ile Leu Ala Asp Glu Pro Thr Thr Ala Leu Asp Ser Met Ser Gln Ala
 195 200 205
 Gln Val Leu Arg Ile Leu Arg Asn Ile Gln Gln Gln Lys Gln Ala Thr
 210 215 220
 Ile Leu Leu Val Thr His Asn Leu Ser Leu Val Lys Glu Leu Cys Asn
 225 230 235 240
 Asp Ile Cys Ile Ile Lys Asp Gly Lys Leu Ile Glu Thr Gly Thr Val
 245 250 255
 Glu Glu Ile Phe Leu Ser Pro Lys His Pro Tyr Thr Leu Lys Leu Leu
 260 265 270
 Asn Ala Val Ser Lys Ile Pro Ile Lys Lys Thr Ser Ser Pro Ile Leu
 275 280 285
 Lys Asn Lys Phe Gln Pro Leu Met Ser Met Gln Gly Gly Leu
 290 295 300

<210> 204
 <211> 273
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 204
 Val Pro Thr Ser Asn Glu Tyr Ala Arg Trp Phe Met Thr Thr Leu Leu
 1 5 10 15
 Ser Ile Lys Asp Leu Ser Leu Thr Ile Arg Gly Lys Lys Ile Leu Asn
 20 25 30

His Ile Asn Leu Asn Leu Ile Lys Gly Ser Tyr Leu Thr Ile Val Gly
 35 40 45
 Pro Ser Gly Ser Gly Lys Ser Ser Leu Ala Leu Thr Ile Leu Asp Leu
 50 55 60
 Leu Lys Pro Thr Thr Gly Thr Ile Thr Phe His Met Asp Pro Lys Ile
 65 70 75 80
 Pro Arg Ala Arg Lys Val Gln Val Ile Trp Gln Asp Ile Asp Ser Ser
 85 90 95
 Leu Asn Pro Cys Met Ser Ile Lys Gly Ile Ile Ser Glu Pro Leu Asn
 100 105 110
 Ile Ile Gly Thr Tyr Ser Lys Ala Glu Gln Asn Lys Glu Ile Tyr Asn
 115 120 125
 Val Leu Asp Leu Val Asn Leu Pro Lys Ser Val Leu His Leu Lys Pro
 130 135 140
 Tyr Lys Leu Ser Gly Gly Gln Lys Gln Arg Ile Ala Ile Ala Lys Ala
 145 150 155 160
 Leu Val Ser Lys Pro Glu Leu Leu Ile Cys Asp Glu Pro Leu Ser Ser
 165 170 175
 Leu Asp Thr Leu Asn Gln Ser Leu Ile Leu Asp Leu Phe Gln Thr Ile
 180 185 190
 Lys Lys Glu Tyr Gln Asn Thr Leu Phe Ile Thr His Asp Met Ser
 195 200 205
 Ala Ala Tyr Tyr Ile Ala Asp Thr Ile Ala Val Met Asp Gln Gly Ser
 210 215 220
 Leu Val Glu His Ala Cys Arg Glu Lys Ile Phe Ser Thr Pro Lys His
 225 230 235 240
 Thr Thr Thr Gln Asp Leu Leu Asp Ala Ile Pro Ile Phe Ser Leu Ile
 245 250 255
 Ser Thr Glu Met Glu Pro Ser Glu Glu Tyr Glu Leu Gln Val Ala Ser
 260 265 270
 Lys

<210> 205
 <211> 279
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 205
 Ile Val Pro Leu Pro Gln Lys Asn Asn Lys Glu Thr Ser Cys Met Asn
 1 5 10 15
 Thr Tyr Thr Phe Ser Pro Thr Leu Gln Lys Ser Phe Ser Leu Phe Leu
 20 25 30
 Leu Glu Lys Leu Asp Ser Tyr Phe Phe Phe Gly Gly Thr Arg Thr Gln
 35 40 45
 Ile Leu Val Ile Thr Pro Thr Asn Ile Arg Leu Ala Ala Lys Lys Arg
 50 55 60
 Gly Cys Lys Val Ser Thr Ile Glu Lys Ile Ile Lys Ile Leu Ser Phe
 65 70 75 80
 Ile Leu Leu Pro Leu Val Ile Ile Ala Phe Ile Leu Arg Tyr Phe Leu
 85 90 95
 His Lys Lys Phe Asp Lys Gln Phe Leu Cys Ile Pro Lys Val Ile Ser
 100 105 110
 Asn Glu Asp Glu Ala Leu Leu Gly Ser Arg Pro Gln Ala Val Glu Lys
 115 120 125
 Ala Val Arg Glu Ile Ser Pro Ala Phe Phe Ser Ile Pro Arg Lys Tyr
 130 135 140
 Gln Leu Ile Arg Ile Asp Thr Pro Lys Asp Asp Ala Pro Ser Ile Leu
 145 150 155 160
 Phe Pro Ile Gly Ile Glu Ile Ile Leu Lys Asp Leu Cys Ile Asp Thr
 165 170 175

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Lys | Gln | Ser | Asn | Leu | Phe | Leu | Lys | Arg | Glu | Met | Asp | Phe | Leu | Gly |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| His | Pro | Glu | Glu | Lys | Ala | Leu | Phe | Asp | Ser | Ile | Cys | Ser | Ile | Glu | Lys |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Asp | Gln | Glu | Trp | Met | Ser | Leu | Glu | Ser | Lys | Lys | Leu | Leu | Ile | Thr | His |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Phe | Leu | Lys | Tyr | Leu | Phe | Val | Ser | Gly | Ile | Glu | Gln | Leu | Asn | Pro | Gly |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Phe | Asn | Pro | Glu | Asn | Gly | Arg | Gly | Tyr | Phe | Ser | Glu | Ile | Ser | Thr | Ala |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Lys | Ile | His | Phe | His | Gln | His | Gly | Arg | Tyr | Gly | Pro | Ile | Arg | Ser | Ser |
| | | | 260 | | | | 265 | | | | | | 270 | | |
| Gly | Pro | Ile | Met | Lys | Glu | Ile | | | | | | | | | |
| | | | 275 | | | | | | | | | | | | |

<210> 206
 <211> 104
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 206 | | | | | | | | | | | | | | | |
| Pro | Arg | Glu | Trp | Ala | Trp | Val | Phe | Phe | Arg | Asn | Lys | Tyr | Ser | Lys | Asp |
| 1 | | | | 5 | | | | 10 | | | | | | 15 | |
| Pro | Phe | Ser | Ser | Ala | Arg | Ser | Ile | Trp | Ala | Asn | Pro | Phe | Phe | Gly | Thr |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| His | His | Glu | Gly | Asn | Ile | Lys | Ile | Lys | Gly | Met | Gly | Tyr | Gln | Ile | Phe |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Thr | Arg | Leu | Lys | Lys | Leu | Gly | Ile | Ser | Phe | Ser | Ser | Tyr | Asn | Ser | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Asn | Pro | Asn | Pro | Tyr | Phe | Phe | Asp | Glu | Gly | Cys | Phe | Val | Tyr | Trp | Glu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ser | Gln | Phe | Lys | Ser | Ala | Leu | Gln | Asp | His | Gly | Ile | Leu | Gln | Lys | Gln |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Thr | Glu | Thr | Phe | Tyr | Arg | Asn | Thr | | | | | | | | |
| | | | 100 | | | | | | | | | | | | |

<210> 207
 <211> 85
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 207 | | | | | | | | | | | | | | | |
| Ile | Glu | Asp | Ser | Ile | Lys | Gly | Tyr | Gly | Ser | Ala | Ser | Ala | Phe | Arg | Asn |
| 1 | | | | 5 | | | | 10 | | | | | | 15 | |
| Pro | Pro | Gln | Leu | Leu | Leu | Lys | Phe | Phe | Leu | Val | Cys | Glu | Glu | Leu | Cys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ile | Leu | Thr | Val | Ala | Thr | His | Arg | Ala | Leu | Leu | Glu | Thr | Pro | Leu | Ala |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Leu | Ser | Phe | Phe | Lys | Glu | Leu | Lys | Thr | Lys | Tyr | Val | Tyr | Arg | Ala | Lys |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Asp | Ile | Leu | Gln | Leu | His | Asn | Tyr | Lys | Gly | Phe | Thr | Ile | Leu | Asn | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ser | Pro | Leu | Cys | Ser | | | | | | | | | | | |
| | | | | 85 | | | | | | | | | | | |

<210> 208
 <211> 272
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 208

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Val | Asp | Arg | Arg | Ser | Pro | Ala | Cys | Tyr | Asp | Ser | Ile | Asn | Ser | Asp |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ala | Ile | Gly | Val | Ser | Leu | Leu | Met | Asp | Ile | Ser | His | Ile | Leu | Glu | Asp |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Ala | Tyr | Asp | Glu | Gly | Ile | Leu | Pro | Arg | Glu | Ala | Ile | Glu | Ala | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ile | Val | Lys | Gln | Met | Gln | Ile | Thr | Pro | Tyr | Leu | Leu | His | Ile | Leu | His |
| | 50 | | | | 55 | | | | | 60 | | | | | |
| Asp | Ala | Thr | Gln | Arg | Val | Pro | Glu | Ile | Val | Asn | Asp | Gly | Ser | Tyr | Gln |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Gly | His | Leu | Tyr | Ala | Met | Tyr | Leu | Leu | Ala | Gln | Phe | Arg | Glu | Ser | Arg |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Leu | Pro | Leu | Ile | Ile | Lys | Leu | Phe | Ala | Phe | Glu | Asp | Asp | Thr | Pro |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| His | Ala | Ile | Ala | Gly | Asp | Val | Leu | Thr | Glu | Asp | Leu | Pro | Arg | Ile | Leu |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Ala | Ser | Val | Cys | Asn | Asp | Asp | Ser | Leu | Ile | Lys | Glu | Leu | Ile | Glu | Thr |
| | 130 | | | | 135 | | | | | 140 | | | | | |
| Pro | Lys | Ile | Asn | Pro | Tyr | Val | Lys | Ala | Ala | Ala | Ile | Ser | Gly | Leu | Val |
| 145 | | | | 150 | | | | | 155 | | | | | 160 | |
| Thr | Leu | Val | Gly | Ala | Gly | Lys | Ile | Pro | Arg | Asp | Lys | Val | Ile | Arg | Tyr |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Phe | Ala | Glu | Leu | Leu | Asn | Tyr | Arg | Leu | Glu | Lys | Gln | Pro | Ser | Phe | Ala |
| | | 180 | | | | | 185 | | | | | | 190 | | |
| Trp | Asp | Asn | Leu | Ile | Ala | Gly | Ile | Cys | Thr | Leu | Tyr | Pro | Gly | Glu | Leu |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Phe | Tyr | Pro | Ile | Ser | Lys | Ala | Phe | Asp | Gly | Gly | Leu | Val | Asp | Thr | Ser |
| | 210 | | | | 215 | | | | | 220 | | | | | |
| Phe | Ile | Ser | Met | Glu | Asp | Val | Glu | Asn | Ile | Ile | His | Glu | Glu | Thr | Val |
| 225 | | | | 230 | | | | | 235 | | | | | 240 | |
| Glu | Ser | Cys | Ile | His | Thr | Leu | Cys | Ser | Ser | Thr | Glu | Leu | Ile | Asn | Asp |
| | | | 245 | | | | | 250 | | | | | | 255 | |
| Thr | Leu | Glu | Glu | Met | Glu | Lys | Trp | Leu | Glu | Asp | Phe | Pro | Ile | Glu | Pro |
| | | 260 | | | | | | 265 | | | | | 270 | | |

<210> 209
 <211> 470
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 209

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Asn | Lys | Lys | Lys | Arg | Phe | Leu | Ser | Leu | Leu | Phe | Leu | Thr | Ala | Val |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Leu | Gly | Ile | Trp | Phe | Ser | Pro | His | Pro | Ala | Ser | Ile | Asn | Ser | Asn |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Trp | Gln | Leu | Phe | Ala | Ile | Phe | Thr | Thr | Thr | Ile | Met | Gly | Ile | Ile |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Phe | Gln | Pro | Val | Pro | Met | Gly | Ala | Ile | Ala | Ile | Ile | Gly | Ile | Ser | Thr |
| | 50 | | | | 55 | | | | | 60 | | | | | |
| Leu | Leu | Leu | Thr | Gln | Thr | Leu | Thr | Leu | Glu | Gln | Gly | Leu | Ser | Gly | Phe |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| His | Asn | Pro | Ile | Ala | Trp | Leu | Val | Phe | Leu | Ser | Phe | Ser | Ile | Ala | Lys |
| | | | | 85 | | | | 90 | | | | | | 95 | |
| Gly | Ile | Ile | Lys | Thr | Gly | Leu | Gly | Glu | Arg | Ile | Ala | Tyr | Phe | Phe | Val |
| | | | 100 | | | | 105 | | | | | | 110 | | |
| Ser | Ala | Leu | Gly | Lys | Ser | Pro | Leu | Gly | Leu | Ser | Tyr | Gly | Leu | Val | Ile |
| | 115 | | | | | 120 | | | | | | 125 | | | |
| Thr | Asp | Phe | Phe | Leu | Ala | Pro | Ala | Ile | Pro | Ser | Val | Thr | Ala | Arg | Ala |
| | 130 | | | | | 135 | | | | | 140 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Gly | Ile | Leu | Tyr | Pro | Val | Val | Thr | Ser | Leu | Ser | Asp | Ser | Phe | Gly |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Ser | Ala | Glu | Lys | Gly | Thr | Gln | Asp | Leu | Ile | Gly | Ser | Phe | Leu | Ile |
| | | | | 165 | | | | | 170 | | | | | | 175 |
| Lys | Val | Ala | Tyr | Gln | Ser | Ser | Val | Ile | Thr | Ser | Ala | Met | Phe | Leu | Thr |
| | | | | 180 | | | | | 185 | | | | | | 190 |
| Ala | Met | Ala | Gly | Asn | Pro | Leu | Val | Ala | Ala | Leu | Ala | Gly | His | Val | Gly |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Val | Ser | Leu | Ser | Trp | Val | Leu | Trp | Ala | Lys | Ala | Ala | Ile | Ile | Pro | Gly |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Pro | Ser | Leu | Phe | Leu | Met | Pro | Ile | Ile | Leu | Tyr | Lys | Leu | Tyr | Pro |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Pro | Lys | Ile | Thr | Ser | Cys | Glu | Glu | Ala | Ile | Arg | Ser | Ala | Lys | Leu | Arg |
| | | | | 245 | | | | | 250 | | | | | | 255 |
| Leu | Lys | Glu | Met | Gly | Pro | Leu | Lys | Lys | Glu | Glu | Lys | Thr | Ile | Leu | Met |
| | | | 260 | | | | | 265 | | | | | | | 270 |
| Ile | Phe | Phe | Leu | Leu | Val | Val | Leu | Trp | Thr | Phe | Gly | Asp | Leu | Leu | Gly |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ile | Ser | Ala | Thr | Thr | Ala | Ala | Leu | Ile | Gly | Leu | Ser | Leu | Leu | Ile | Leu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Thr | Asn | Ile | Leu | Asp | Trp | Gln | Lys | Asp | Val | Ile | Ala | Asn | Thr | Thr | Ala |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Trp | Glu | Thr | Phe | Ile | Trp | Phe | Gly | Ala | Leu | Ile | Met | Met | Ala | Ser | Phe |
| | | | | 325 | | | | 330 | | | | | | | 335 |
| Leu | Asn | Gln | Leu | Gly | Phe | Ile | Pro | Leu | Val | Gly | Asp | Ser | Ala | Ala | Ala |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Leu | Val | Ser | Gly | Leu | Ser | Trp | Lys | Ile | Gly | Phe | Pro | Leu | Leu | Phe | Leu |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ile | Tyr | Phe | Tyr | Ser | His | Tyr | Leu | Phe | Ala | Ser | Asn | Thr | Ala | His | Ile |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Gly | Ala | Met | Tyr | Pro | Ile | Phe | Leu | Ala | Val | Ser | Ile | Ser | Leu | Gly | Thr |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Asn | Pro | Ile | Phe | Ala | Ala | Leu | Thr | Leu | Ala | Phe | Ala | Ser | Asn | Leu | Phe |
| | | | | 405 | | | | | 410 | | | | | | 415 |
| Gly | Gly | Leu | Thr | His | Tyr | Gly | Ser | Gly | Pro | Ala | Pro | Leu | Tyr | Phe | Gly |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ser | His | Leu | Val | Thr | Val | Gln | Glu | Trp | Trp | Arg | Ser | Gly | Phe | Ala | Leu |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Ser | Ile | Val | Asn | Ile | Val | Ile | Trp | Ile | Gly | Ile | Gly | Ser | Leu | Trp | Trp |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Lys | Ala | Leu | Gly | Leu | Ile | | | | | | | | | | |
| 465 | | | | | 470 | | | | | | | | | | |

<210> 210

<211> 556

<212> PRT

<213> Chlamydia pneumoniae

<400> 210

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Val | Ala | Val | Ile | Leu | Met | His | Pro | Leu | Tyr | Val | Asp | Leu | Asp | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Ile | Ser | Ser | Tyr | Ser | Pro | Pro | Leu | Pro | Lys | Glu | Phe | Gln | Glu | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Ser | Leu | Ile | Ala | Val | Pro | Asp | Thr | Ser | His | Ser | Lys | Pro | Val | Val |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Pro | Gly | Val | Lys | Thr | Leu | Phe | Pro | Gln | Thr | Tyr | His | Leu | Pro | Tyr | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Lys | Phe | Val | Gln | Gly | Glu | Asn | Val | Val | His | Thr | Pro | Leu | Lys | Val | Gly |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Val | Met | Phe | Ser | Gly | Gly | Pro | Ala | Pro | Gly | Gly | His | Asn | Val | Ile | Gln |
| | | | | 85 | | | | | 90 | | | | | 95 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Leu | Phe | Asn | Ser | Leu | Lys | Asp | Phe | His | Pro | Asp | Ser | Ser | Leu | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gly | Phe | Val | Asn | Asn | Gly | Asp | Gly | Leu | Thr | Asn | Asn | Lys | Ser | Ile | Asp |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ile | Thr | Glu | Glu | Phe | Leu | Ser | Lys | Phe | Arg | Asn | Ser | Gly | Gly | Phe | Asn |
| | | 130 | | | | | 135 | | | | 140 | | | | |
| Cys | Ile | Gly | Thr | Gly | Arg | Lys | Lys | Ile | Val | Thr | Pro | Glu | Ala | Lys | Glu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | Cys | Leu | Lys | Thr | Ala | Glu | Ala | Leu | Asp | Leu | Asp | Gly | Leu | Val | Ile |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ile | Gly | Gly | Asp | Gly | Ser | Asn | Thr | Ala | Thr | Ala | Ile | Leu | Ala | Glu | Tyr |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Phe | Ala | Lys | Arg | Arg | Pro | Lys | Thr | Ser | Ile | Val | Gly | Val | Pro | Lys | Thr |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ile | Asp | Gly | Asp | Leu | Gln | His | Thr | Phe | Leu | Asp | Leu | Thr | Phe | Gly | Phe |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Asp | Thr | Ala | Thr | Lys | Phe | Tyr | Ser | Ser | Ile | Ile | Ser | Asn | Ile | Ser | Arg |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Asp | Ala | Leu | Ser | Cys | Lys | Ala | His | Tyr | His | Phe | Ile | Lys | Leu | Met | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Arg | Ser | Ala | Ser | His | Ile | Ala | Leu | Glu | Cys | Ala | Leu | Gln | Thr | His | Pro |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Asn | Ile | Ala | Leu | Ile | Gly | Glu | Glu | Ile | Ala | Glu | Lys | Asn | Leu | Pro | Leu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Lys | Thr | Ile | Ile | His | Lys | Ile | Cys | Ser | Val | Ile | Ala | Asp | Arg | Ala | Ala |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Met | Glu | Lys | Tyr | Tyr | Gly | Val | Ile | Leu | Ile | Pro | Glu | Gly | Ile | Ile | Glu |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Phe | Ile | Pro | Glu | Ile | Ile | Asn | Leu | Ile | Thr | Glu | Ile | Glu | Ser | Leu | Ser |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Glu | Tyr | Glu | Asp | Lys | Ile | Ser | Arg | Leu | Ser | Pro | Glu | Ser | Gln | Arg | Leu |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Leu | Lys | Ser | Phe | Pro | Ala | Pro | Ile | Ile | Glu | Gln | Ile | Leu | Asn | Asp | Arg |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Asp | Ala | His | Gly | Asn | Val | Tyr | Val | Ser | Lys | Ile | Ser | Val | Asp | Lys | Leu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Leu | Ile | His | Leu | Val | Ser | Asn | His | Leu | Gln | Gln | Tyr | Phe | Pro | Asn | Val |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Pro | Phe | Asn | Ala | Ile | Ser | His | Phe | Leu | Gly | Tyr | Glu | Gly | Arg | Ser | Gly |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Leu | Pro | Thr | Lys | Phe | Asp | Asn | Thr | Tyr | Gly | Tyr | Ser | Leu | Gly | Tyr | Gly |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ala | Gly | Ile | Leu | Val | Arg | Asn | His | Cys | Asn | Gly | Tyr | Leu | Ser | Thr | Ile |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Glu | Ser | Leu | Ala | Cys | Pro | Phe | Met | Lys | Trp | Lys | Leu | Arg | Ala | Ile | Pro |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Val | Val | Lys | Met | Phe | Thr | Val | Lys | Gln | Gln | Ala | Asp | Gly | Thr | Leu | Gln |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Pro | Lys | Ile | Lys | Lys | Tyr | Leu | Val | Asp | Ile | Gly | Ser | Thr | Ala | Phe | Arg |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Lys | Phe | Lys | Leu | Tyr | Arg | Lys | Ile | Trp | Ala | Leu | Glu | Asp | Ser | Tyr | Arg |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Phe | Leu | Gly | Pro | Leu | Gln | Ile | Glu | Thr | Pro | Pro | Glu | Met | His | Ser | Asp |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Asn | Phe | Pro | Pro | Leu | Thr | Leu | Leu | Leu | Asn | His | Asn | Phe | Trp | Gln | Arg |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| His | Gln | Gly | Cys | Ile | Glu | Ile | Pro | Asp | Thr | Thr | Tyr | | | | |
| 545 | | | | | 550 | | | | | 555 | | | | | |

<210> 211
 <211> 88
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 211
 Asn Ser Ser Asn Asn Ile Arg Leu Lys Met Glu Thr Tyr Ser Phe Ser
 1 5 10 15
 Thr Glu Leu Gln Lys Asn Thr Ser Leu Tyr Ile Met Glu Lys Leu Asp
 20 25 30
 Ser Tyr Phe Ser Phe Gln Gly Lys Arg Thr Arg Val Ile Ala Ile Thr
 35 40 45
 Pro Ala Gly Leu Ala Ile Ala Tyr Glu Gln Asn Ile His Leu Ser Met
 50 55 60
 Thr Val Lys Ile Leu Lys Val Leu Ser Phe Pro Arg Ser Leu Leu Arg
 65 70 75 80
 Thr Thr Ser Leu Trp Tyr Arg Pro
 85

<210> 212
 <211> 340
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 212
 Tyr Gln Lys Leu Trp Glu Arg Glu Arg Glu Tyr Phe Lys Thr Ile Arg
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 Glu Lys Glu His Ala Thr Ile Ser Thr Met Leu Val Glu Leu Glu Ala
 20 25 30
 Leu Lys Arg Glu Phe Ala His Leu Lys Asp Gln Lys Pro Thr Ser Asp
 35 40 45
 Gln Glu Ile Thr Ser Leu Tyr Gln Cys Leu Asp His Leu Glu Phe Val
 50 55 60
 Leu Leu Gly Leu Gly Gln Asp Lys Phe Leu Lys Ala Thr Glu Asp Glu
 65 70 75 80
 Asp Val Leu Phe Glu Ser Gln Lys Ala Ile Asp Ala Trp Asn Ala Leu
 85 90 95
 Leu Thr Lys Ala Arg Asp Val Leu Gly Leu Gly Asp Ile Gly Ala Ile
 100 105 110
 Tyr Gln Thr Ile Glu Phe Leu Gly Ala Tyr Leu Ser Lys Val Asn Arg
 115 120 125
 Arg Ala Phe Cys Ile Ala Ser Glu Ile His Phe Leu Lys Thr Ala Ile
 130 135 140
 Arg Asp Leu Asn Ala Tyr Tyr Leu Leu Asp Phe Arg Trp Pro Leu Cys
 145 150 155 160
 Lys Ile Glu Glu Phe Val Asp Trp Gly Asn Asp Cys Val Glu Ile Ala
 165 170 175
 Lys Arg Lys Leu Cys Thr Phe Glu Lys Glu Thr Lys Glu Leu Asn Glu
 180 185 190
 Ser Leu Leu Arg Glu Glu His Ala Met Glu Lys Cys Ser Ile Gln Asp
 195 200 205
 Leu Gln Arg Lys Leu Ser Asp Ile Ile Ile Glu Leu His Asp Val Ser
 210 215 220
 Leu Phe Cys Phe Ser Lys Thr Pro Ser Gln Glu Glu Tyr Gln Lys Asp
 225 230 235 240
 Cys Leu Tyr Gln Ser Arg Leu Arg Tyr Leu Leu Leu Tyr Glu Tyr
 245 250 255
 Thr Leu Leu Cys Lys Thr Ser Thr Asp Phe Gln Glu Gln Ala Arg Ala
 260 265 270
 Lys Glu Glu Phe Ile Arg Glu Lys Phe Ser Leu Leu Glu Leu Glu Lys
 275 280 285

Gly Ile Lys Gln Thr Lys Glu Leu Glu Phe Ala Ile Ala Lys Ser Lys
 290 295 300
 Leu Glu Arg Gly Cys Leu Val Met Arg Lys Tyr Glu Ala Ala Ala Lys
 305 310 315 320
 His Ser Leu Asp Ser Met Phe Glu Glu Glu Thr Val Lys Ser Pro Arg
 325 330 335
 Lys Asp Thr Glu
 340

<210> 213
 <211> 101
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 213
 Glu Cys Val Met Ser Tyr Pro Asp Ile Ser Asn Val Gln Ala Ser Ser
 1 5 10 15
 Ile Gln Ser Ala Leu Leu His Lys Thr Ser Asp Gln Ile Gln Gln Lys
 20 25 30
 Arg Cys Phe Lys Gln Ser Thr Phe Val Ile Leu Ala Val Ser Leu Val
 35 40 45
 Ile Ile Gly Ser Leu Phe Leu Leu Ala Gly Val Ala Ile Leu Thr Val
 50 55 60
 Phe Ser His Gly Val Leu Ser Leu Val Phe Gly Val Leu Gly Ile Val
 65 70 75 80
 Leu Gly Leu Leu Leu Leu Ala Gly Gly Val Gly Leu Leu Val Glu Glu
 85 90 95
 Ala Lys Ser Leu Leu
 100

<210> 214
 <211> 398
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 214
 Glu Leu Ser Tyr Gly Val Val Val Ser Ile Tyr Ser Glu Ile Leu Ser
 1 5 10 15
 Phe Ser Glu Leu Thr Ser Cys Lys His Ser Leu Phe Pro Phe Gly Pro
 20 25 30
 Ile Glu Thr Ala Ser Ile Arg Ile His His Val Phe Asn Val Val Ile
 35 40 45
 Val Cys Leu Ile Ile Leu Gly Thr Leu Phe Val Cys Leu Gly Met Val
 50 55 60
 Phe Leu Gly Val Phe Ser Thr Tyr Leu Leu Gly Met Ser Ser Met Ile
 65 70 75 80
 Leu Gly Leu Leu Leu Ile Ser Ile Gly Leu Ala Leu Leu Lys Phe Lys
 85 90 95
 Glu Arg Tyr Gly Leu Glu Pro Lys Glu Leu Phe Gly Val Glu Gly Gly
 100 105 110
 Phe Asp Lys Lys Leu Pro Ser Glu Ile Ile Gln Met Gln Asp Gln Ile
 115 120 125
 Ala Asp Leu Ala Arg Glu Leu Asp Leu Glu Gln Lys Lys Asp Thr Leu
 130 135 140
 Ile Arg Gly Phe Ser Ala Arg Leu Asp Val Leu Glu Gly Ser Lys Thr
 145 150 155 160
 Glu Lys Lys Gln Ile Leu Lys Ile Gly Val Pro Arg Asn Leu Ser Glu
 165 170 175
 Ile Gln Glu Arg Ala Gln Glu Gln Asn Ser Ile Leu Glu Gln Cys Lys
 180 185 190

Glu Ala Leu Leu Phe Arg Arg Lys Ser Ala Gln Glu Ile Phe Lys Lys
 195 200 205
 Leu Tyr Asp Arg Lys Ala Ala Phe Trp Arg Ser Tyr Arg Glu Asp Leu
 210 215 220
 Trp Cys Tyr Ser Glu Ile His Val Ser Lys Lys Ala Leu Ser Asn Leu
 225 230 235 240
 Tyr Ile Gly Asp Val Phe Glu Gly Thr Ala Pro His Phe Leu Met Glu
 245 250 255
 Ala Tyr Ala Met Cys Arg Thr Ala Lys Asn Leu Arg Asn Tyr Val Lys
 260 265 270
 Val Cys Val Glu Asp Met Arg Val Asn Glu Glu Lys Lys Arg Ala Lys
 275 280 285
 Gln Leu Ser Val Ser Glu Leu Cys Cys Cys Thr Glu Ile Glu Thr
 290 295 300
 Asp Leu Glu Asn Glu Thr Asn Leu Phe Thr Ser Asp Ser Glu Asp Val
 305 310 315 320
 Leu Glu Glu Tyr Gln Ile His Cys Ile Arg Val Thr Met Leu His Ala
 325 330 335
 Leu Trp Ala Ile Tyr Asn Asp Glu Val Val Ser Arg Lys Pro Ile Asp
 340 345 350
 Thr Leu Asp Arg Val Arg Ala Arg Met Ala Val Glu Asp Cys Ile Glu
 355 360 365
 Thr Phe Glu Glu Leu Gln Met Cys Val Val His Thr Lys Thr Leu Glu
 370 375 380
 Leu Glu Ile Ala Gln Leu Tyr Val Asp Ile Leu Leu Glu Ala
 385 390 395

<210> 215
 <211> 52
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 215
 Ile Leu Val Val Phe Ser Arg Val Ile Phe Ser Asn Thr Asn Gln Ile
 1 5 10 15
 Gly Ile Pro Arg Leu Glu Leu Ile Leu Pro Leu Trp Lys Lys Glu Asn
 20 25 30
 Asp Pro Phe Cys Phe Leu Phe Ser Arg Val Glu Gly Thr Phe Ile Ile
 35 40 45
 Leu Asn Ile Lys
 50

<210> 216
 <211> 441
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 216
 Phe Leu Gly Leu Lys Glu Asp Tyr Glu Arg Pro Thr Tyr Cys Asn Ile
 1 5 10 15
 Pro Pro Ala Pro His Pro Gln Arg Val Asp Ser Lys Gly Cys Ile Ala
 20 25 30
 Ser His Val Ser Thr Val Val Val Val Ala Leu Phe Ile Leu Gly Ile
 35 40 45
 Phe Phe Leu Ser Gly Ser Leu Ala Phe Leu Val His Thr Ser Cys Gly
 50 55 60
 Val Leu Leu Gly Ala Ala Leu Pro Ile Leu Cys Ile Gly Leu Val Leu
 65 70 75 80
 Leu Ala Val Ala Leu Ile Val Phe Leu Cys His Lys His Lys Thr Arg
 85 90 95

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Gln | Asp | Leu | Asp | Tyr | Tyr | Asp | Gln | Asp | Leu | Asp | Ser | Leu | Val | Ile | His | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Lys | Lys | Glu | Ile | Pro | Asn | Asp | Ile | Ser | Glu | Leu | Arg | Val | Thr | Phe | Glu | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Lys | Leu | Gln | Asn | Leu | Phe | Gln | Phe | His | Thr | Lys | Asp | Phe | Ser | Asp | Leu | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Ser | Gln | Glu | Leu | Gln | Gly | Lys | Phe | Ile | Asn | Cys | Met | Glu | Lys | Trp | Leu | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Thr | Leu | Glu | Asp | Glu | Val | Thr | Lys | Phe | Leu | Ile | Val | Arg | Asp | Arg | Phe | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Leu | Glu | Thr | Arg | Arg | Asn | Phe | Thr | Thr | Phe | Gly | Glu | Gln | Val | Lys | Gly | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Ile | Gln | Ser | Asn | Ile | Phe | Asp | Leu | His | Glu | Glu | Lys | Ser | Ser | Leu | Tyr | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Leu | Glu | Leu | Tyr | Arg | Leu | Arg | Lys | Asp | Leu | Gln | Val | Leu | Leu | Asn | Phe | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Phe | Leu | Leu | Pro | Pro | Gly | Ile | Leu | Lys | Val | Asp | Tyr | Asp | Glu | Ile | Glu | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Ala | Ile | Lys | Gly | Leu | Phe | Ile | Arg | Leu | Thr | Ser | Arg | Leu | Asp | Lys | Leu | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Asp | Val | Lys | Ala | Gln | Glu | Arg | Lys | Lys | Phe | Ile | Asn | Glu | Met | Ser | Arg | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Glu | Phe | Lys | Glu | Val | Glu | Lys | Ala | Phe | Asp | Ile | Val | Asp | Arg | Ala | Thr | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Lys | Lys | Leu | Met | Asp | Arg | Ala | Lys | Lys | Glu | Ser | Pro | Ala | Arg | Leu | Phe | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Met | Gly | Arg | Thr | Glu | Ser | Leu | Leu | Glu | Met | Lys | Lys | Asn | Glu | Glu | Ala | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Leu | Lys | Asn | Gln | Gly | Leu | Asp | Pro | Glu | Asn | Leu | Ser | His | Pro | Glu | Leu | |
| | | | 325 | | | | | 330 | | | | | | 335 | | |
| Phe | Ser | Pro | Tyr | Gln | Gln | Leu | Leu | Ile | Leu | Asn | Tyr | Leu | Asn | Ser | Glu | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| Ile | Val | Leu | His | His | Tyr | Glu | Phe | Leu | Ile | Ser | Gly | Thr | Val | Thr | Ser | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| Gly | Leu | Thr | Leu | Glu | Glu | Cys | Glu | Asn | Arg | Met | Arg | Ala | Ala | Ser | Thr | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Gly | Leu | Asn | Ala | Leu | Leu | Val | Arg | Lys | Leu | Gln | Phe | Arg | Gly | Ala | Ile | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| Lys | Ser | Ala | Tyr | Phe | Glu | Lys | Leu | Thr | Glu | Ile | Glu | Lys | Glu | Leu | Arg | |
| | | | 405 | | | | | 410 | | | | | 415 | | | |
| Ser | Leu | Gln | Asp | Val | Ile | Lys | Ser | Leu | Glu | Leu | Glu | Leu | Ile | His | Lys | |
| | | | 420 | | | | | 425 | | | | 430 | | | | |
| Ile | Lys | Asp | Ile | Val | Thr | Glu | Glu | Thr | | | | | | | | |
| | | 435 | | | | | 440 | | | | | | | | | |

<210> 217

<211> 427

<212> PRT

<213> Chlamydia pneumoniae

<400> 217

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Leu | Thr | Ser | Ser | Lys | Lys | Gln | Val | Met | Ser | Ser | Ala | Ile | Ala | Arg | Asp | |
| 1 | | | | 5 | | | | 10 | | | | | | 15 | | |
| Cys | Phe | Pro | Ser | Pro | Ser | Pro | Gln | Pro | Ser | Ser | Thr | Leu | Gly | Val | His | |
| | | 20 | | | | | | 25 | | | | | 30 | | | |
| Pro | Pro | Lys | Tyr | Lys | Ser | Leu | Ile | Leu | Ser | Val | Ser | Leu | Ile | Val | Leu | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Gly | Val | Leu | Leu | Leu | Cys | Val | Gly | Met | Leu | Leu | Leu | Val | Asn | Ala | Ile | |
| | 50 | | | | | 55 | | | | 60 | | | | | | |
| Phe | Ser | Phe | Ser | Val | Leu | Thr | Val | Gly | Leu | Gly | Gly | Ala | Gly | Val | Phe | |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Gly | Ser | Leu | Leu | Leu | Ile | Leu | Gly | Leu | Ile | Phe | Phe | Val | Ser | Tyr |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| His | Arg | Lys | Leu | Ser | Glu | Ala | Thr | Arg | Ser | Leu | Glu | Gln | Lys | Ile | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Glu | Tyr | Gln | Pro | Trp | Ala | Asp | Leu | Arg | Lys | Glu | Leu | Asn | Glu | Val |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gln | Glu | Trp | Ser | Asn | Phe | Leu | Leu | Asp | Glu | Trp | Glu | Asp | Phe | Lys | Glu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Val | Val | Ala | Gln | His | Lys | Ser | Gln | Phe | Ala | Thr | Phe | Glu | Gly | Asp | Leu |
| 145 | | | | | 150 | | | | 155 | | | | | 160 | |
| Leu | Leu | Phe | Gly | Arg | Glu | Val | Glu | Lys | Tyr | Glu | Thr | Ile | Trp | Lys | Glu |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Leu | Asp | Gly | Arg | Asp | Val | Ala | Leu | Leu | Thr | Glu | Leu | Lys | Asn | Ile | Trp |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Gly | Pro | Leu | Glu | Phe | Leu | Arg | Lys | Lys | Gly | Asp | Arg | Leu | Gln | Cys | Glu |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Ile | Asp | Lys | Leu | Arg | Lys | Glu | Val | Met | Lys | Val | Gly | Lys | Ser | Gly | Leu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Lys | Leu | Ala | Cys | Glu | Leu | Thr | Lys | Phe | Lys | Ser | Ala | Leu | Lys | Asp | Val |
| 225 | | | | | 230 | | | | | 235 | | | | 240 | |
| Lys | Ile | Glu | Gln | Glu | Cys | Tyr | Arg | Asp | Lys | Arg | Lys | Val | Glu | Lys | Leu |
| | | | 245 | | | | | 250 | | | | | 255 | | |
| Glu | Val | Phe | Pro | Glu | Gly | Tyr | Arg | Arg | Glu | Leu | Leu | Glu | Val | Leu | Lys |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Thr | Arg | Leu | Ser | Val | Glu | Lys | Glu | Ile | Gln | Leu | Phe | Glu | Glu | Val | Val |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Ser | Ala | Phe | Glu | Glu | Lys | Leu | Ala | Ser | Leu | His | Arg | Thr | Val | Phe | Ser |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Glu | Glu | Glu | Leu | Gln | Glu | Ala | Leu | Asp | Lys | Ala | Lys | Ala | Glu | Leu | Leu |
| 305 | | | | 310 | | | | | | 315 | | | | | 320 |
| Asp | Ile | Gln | Val | Arg | Lys | Ser | Val | Val | Glu | Asp | Leu | Ser | Cys | Glu | Pro |
| | | | 325 | | | | | 330 | | | | | 335 | | |
| Thr | Leu | Ile | Gln | Tyr | His | Leu | Leu | Arg | Leu | Tyr | Glu | Val | Gln | Cys | Arg |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ile | Val | Glu | Gln | Phe | Leu | Thr | Gln | Thr | Phe | Ser | Ser | Glu | Gln | Glu | Lys |
| | 355 | | | | | | 360 | | | | | 365 | | | |
| Val | Leu | Glu | Glu | Tyr | Glu | Ala | Leu | Lys | Ala | Arg | Ile | Arg | Lys | Thr | Leu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Arg | Val | Lys | Leu | Asp | Gln | Val | Arg | Ala | Asn | Val | Ala | Phe | Val | Ala | Ser |
| 385 | | | | 390 | | | | | | 395 | | | | | 400 |
| Thr | Thr | Asp | Leu | Leu | Ser | Glu | Ser | Glu | Ser | Leu | Asp | Gly | Asn | Asp | Ser |
| | | | 405 | | | | | 410 | | | | | 415 | | |
| Val | Phe | Glu | Asp | Ala | His | Asp | Asp | Phe | Leu | Asp | | | | | |
| | | | 420 | | | | | 425 | | | | | | | |

<210> 218
 <211> 150
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 218
 Asn Lys Ala Arg Thr Met Asn Pro Val Thr Phe Asp Arg Ile Gln Val
 1 5 10 15
 Asp Phe Ile Pro Glu Asp Thr Ser Leu Arg Ile Asn Ser Tyr Ile Val
 20 25 30
 Ala Gly Gly Leu Leu Ile Leu Gly Val Val Leu Ser Ile Leu Ser Val
 35 40 45
 Ile Cys Leu Asp Ile Gly Leu Val Gly Leu Ser Ala Gly Ala Ala Phe
 50 55 60
 Thr Leu Gly Leu Gly Cys Leu Ile Phe Ala Leu Phe Leu Phe Ser Phe
 65 70 75 80

Ser Leu Ile Leu Leu Leu Ser Gln Glu Lys Arg Val Pro Asp Val Leu
85 90 95
Ser Leu Tyr Leu Glu Lys Glu Val Pro Gln Tyr Glu Thr Pro Leu Tyr
100 105 110
Lys Glu Asp Leu Glu Ser Glu Arg Asp Met Ser Ala Ile Ser Glu Arg
115 120 125
Leu Gly Ile Ile Glu Glu Lys Leu Arg Ile Ala Glu Lys Phe Arg Tyr
130 135 140
Ser Asp Ser Val Phe Val
145 150

<210> 219
<211> 233
<212> PRT
<213> Chlamydia pneumoniae

<400> 219
Pro Lys Cys Cys Lys Leu Lys Gly Phe Leu Ser Val Asn Glu Leu Ile
1 5 10 15
Phe Gly Phe Gln Thr Phe Ser Val Val Val Leu Gly Val Phe Phe Ala
20 25 30
Ser Arg Gly Lys Ala Trp Leu Thr Gly Trp Leu Ser Leu Leu Ser Ser
35 40 45
Ile Met Asn Val Phe Val Leu Lys Gln Ile His Leu Trp Gly Phe Glu
50 55 60
Val Thr Ser Ala Asp Val Tyr Val Ile Gly Leu Thr Cys Leu Asn
65 70 75 80
Tyr Ala Arg Glu His Tyr Glu Lys Asn Asp Ile Asn Asp Ala Met Leu
85 90 95
Cys Ser Trp Val Ile Ser Ile Ala Phe Leu Val Leu Thr Gln Leu His
100 105 110
Leu Phe Leu Ile Pro Ser Pro Asn Asp Ser Ser Gln Glu His Phe Leu
115 120 125
Ala Leu Phe Ser Ser Thr Pro Arg Ile Val Val Ala Ser Leu Val Thr
130 135 140
Leu Ile Phe Val Gln Ile Val Asp Ile Lys Leu Phe Thr Phe Leu Gln
145 150 155 160
Arg Val Phe Ser Lys Lys Tyr Phe Ala Met Arg Ser Thr Ile Ser Leu
165 170 175
Leu Phe Ser Gln Leu Ile Asp Thr Ile Ile Phe Ser Phe Leu Gly Leu
180 185 190
Tyr Gly Leu Val Ser Asn Leu Cys Asp Val Met Ile Phe Ala Met Leu
195 200 205
Val Lys Gly Ile Val Ile Thr Leu Ala Ile Pro Thr Leu Thr Val Thr
210 215 220
Lys Ala Val Leu Asp Arg Arg Ser Ser
225 230

<210> 220
<211> 161
<212> PRT
<213> Chlamydia pneumoniae

<400> 220
Ile Phe Leu Ser Lys Lys Val Phe Phe Glu Ser Tyr Glu Asp Phe Ala
1 5 10 15
Asn Val Ala Ser Ser Trp Pro Lys Ser Leu Arg Ala Leu Val Gln Gly
20 25 30
Arg Tyr Phe Val Asp Ser Glu Leu Lys Glu Thr Pro Tyr Arg Ile His
35 40 45

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Phe | Lys | Lys | Thr | Pro | Ile | His | His | Arg | Leu | Tyr | Arg | Ser | Leu | Pro |
| 50 | | | | | | 55 | | | | 60 | | | | | |
| Ile | Ile | Ser | Thr | Ile | Gly | Gly | Ile | Ile | Arg | Leu | Ile | Glu | Ala | His | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Pro | Ile | His | Pro | Arg | Asp | Lys | Met | Lys | Tyr | Arg | Phe | Glu | Val | Leu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Gln | Ala | Val | Ile | Glu | Ile | Leu | Gly | Leu | Gly | Val | Leu | Ile | Leu | Val | Phe |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asp | Ile | Ile | Gly | Cys | Phe | Leu | Ala | Phe | Leu | Val | Ala | Ile | Ile | Leu | Ser |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Leu | Leu | Leu | Tyr | Cys | Asn | Ser | Thr | Phe | Thr | Cys | Val | Gln | Asn | Leu | Ser |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Phe | Thr | Glu | Arg | Met | Leu | Glu | Gly | Ile | Gly | Glu | Ala | Val | Asn | Phe | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | | | | | | | | | | | | | | | |

<210> 221
 <211> 375
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 221

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Ser | Ser | Leu | Ala | Leu | Lys | Phe | His | Leu | Ile | His | Gln | Ser | Lys | Lys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Gln | Ala | Arg | Val | Gly | Gln | Ile | Glu | Thr | Ser | His | Gly | Val | Ile | Asp |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Thr | Pro | Ala | Phe | Val | Pro | Val | Ala | Thr | His | Gly | Ala | Leu | Lys | Gly | Val |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Ile | Asp | His | Ser | Asp | Ile | Pro | Leu | Leu | Phe | Cys | Asn | Thr | Tyr | His | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Leu | Leu | His | Pro | Gly | Pro | Glu | Ala | Val | Ala | Lys | Leu | Gly | Gly | Leu | His |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gln | Phe | Met | Gly | Arg | Gln | Ala | Pro | Ile | Ile | Thr | Asp | Ser | Gly | Gly | Phe |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Gln | Ile | Phe | Ser | Leu | Ala | Tyr | Gly | Ser | Val | Ala | Glu | Glu | Ile | Lys | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Cys | Gly | Lys | Lys | Lys | Gly | Met | Ser | Ser | Leu | Val | Lys | Ile | Thr | Asp | Glu |
| | 115 | | | | | 120 | | | | | | 125 | | | |
| Gly | Ala | Trp | Phe | Lys | Ser | Tyr | Arg | Asp | Gly | Arg | Lys | Leu | Phe | Leu | Ser |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Pro | Glu | Leu | Ser | Val | Gln | Ala | Gln | Lys | Asp | Leu | Gly | Ala | Asp | Ile | Ile |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ile | Pro | Leu | Asp | Glu | Leu | Leu | Pro | Phe | His | Thr | Asp | Gln | Glu | Tyr | Phe |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Thr | Ser | Cys | Ser | Arg | Thr | Tyr | Val | Trp | Glu | Lys | Arg | Ser | Leu | Glu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Tyr | His | Arg | Lys | Asp | Pro | Arg | His | Gln | Ser | Met | Tyr | Gly | Val | Ile | His |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Gly | Gly | Leu | Asp | Pro | Glu | Gln | Arg | Arg | Ile | Gly | Val | Arg | Phe | Val | Glu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Asp | Glu | Pro | Phe | Asp | Gly | Ser | Ala | Ile | Gly | Gly | Ser | Leu | Gly | Arg | Asn |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Gln | Glu | Met | Ser | Glu | Val | Val | Lys | Ile | Thr | Thr | Ser | Phe | Leu | Ser |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Lys | Glu | Arg | Pro | Val | His | Leu | Leu | Gly | Ile | Gly | Asp | Leu | Pro | Ser | Ile |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Tyr | Ala | Met | Val | Gly | Phe | Gly | Ile | Asp | Ser | Phe | Asp | Ser | Ser | Tyr | Pro |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Thr | Lys | Ala | Ala | Arg | His | Gly | Leu | Ile | Leu | Ser | Lys | Ala | Gly | Pro | Ile |
| | 290 | | | | | 295 | | | | | 300 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Ile | Gly | Gln | Gln | Lys | Tyr | Ser | Gln | Asp | Ser | Ser | Thr | Ile | Asp | Pro |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Ser | Cys | Ser | Cys | Leu | Thr | Cys | Leu | Ser | Gly | Ile | Ser | Arg | Ala | Tyr | Leu |
| | | | | 325 | | | | | 330 | | | | | | 335 |
| Arg | His | Leu | Phe | Lys | Val | Arg | Glu | Pro | Asn | Ala | Ala | Ile | Trp | Ala | Ser |
| | | | | 340 | | | | 345 | | | | | | | 350 |
| Ile | His | Asn | Leu | His | His | Met | Gln | Val | Met | Lys | Glu | Ile | Arg | Glu | |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ala | Ile | Leu | Lys | Asp | Glu | Ile | | | | | | | | | |
| | 370 | | | | | 375 | | | | | | | | | |

<210> 222
 <211> 193
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 222

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Tyr | Ser | Phe | Leu | Lys | Lys | Lys | Gly | Ile | Phe | Tyr | Met | Ser | Lys | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Ile | Arg | Ser | Tyr | Ser | Glu | Ile | Ser | Thr | Pro | Thr | Pro | Ile | Phe | Arg |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Thr | Pro | Ser | Lys | Glu | Gly | Val | Ala | Tyr | Lys | Leu | Gln | Leu | Arg | Ser |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Pro | Ala | Lys | Asp | Cys | Ile | Leu | Arg | Asn | Arg | Val | Ser | Leu | Lys | Gly | Ala |
| | 50 | | | | 55 | | | | | | 60 | | | | |
| Leu | Leu | Arg | Ser | Ile | Pro | Phe | Tyr | Gly | Ser | Phe | Leu | Gly | Ala | Lys | Arg |
| 65 | | | | 70 | | | | | | 75 | | | | | 80 |
| Ile | His | Ser | Ala | Trp | Ser | Ala | Lys | Asp | Ala | Pro | Cys | Thr | Thr | Arg | Val |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Tyr | His | Tyr | Leu | Val | Gly | Gly | Leu | Glu | Leu | Leu | Gly | Leu | Gly | Val | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Leu | Ala | Cys | Lys | Val | Leu | Ala | Thr | Ala | Leu | Lys | Phe | Leu | Phe | Ser |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Lys | Ala | Ser | Ser | Lys | Ile | Lys | Gln | Met | Lys | Trp | Arg | Glu | Lys | Ala | Arg |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asn | Leu | Ala | Ala | Lys | Asp | Thr | Val | Gln | Ser | Ile | Lys | Glu | Phe | Cys | Ser |
| 145 | | | | 150 | | | | | | 155 | | | | | 160 |
| Val | Asp | Leu | Thr | Ser | Cys | Phe | Thr | Arg | Cys | Phe | Arg | Leu | Arg | Asn | Arg |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Val | Val | Glu | Glu | Gly | Ala | Ser | Glu | Asn | Gln | Thr | Val | Arg | Glu | Ile | Ile |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Val | | | | | | | | | | | | | | | |

<210> 223
 <211> 148
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 223

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ala | Leu | Arg | Tyr | Lys | Tyr | Glu | Ile | Gly | Ile | Gln | Met | Val | Asn | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Tyr | Lys | Ser | Ser | Ala | Glu | Phe | Ser | Ala | Asp | His | Tyr | Tyr | Asp | Asp | Asn |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Val | Arg | Met | Gly | Tyr | Lys | Arg | Asn | Leu | Arg | Gly | Leu | Ala | Pro | Val |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Glu | Asn | Glu | Val | Cys | Leu | Phe | Glu | Glu | Asn | Asn | Leu | Leu | Glu | Ser | Val |
| | 50 | | | | 55 | | | | | | 60 | | | | |
| Met | Ala | Ser | Ile | Pro | Ile | Met | Gly | Ser | Ile | Leu | Gly | Leu | Gly | Arg | Leu |
| 65 | | | | 70 | | | | | | 75 | | | | | 80 |

<400> 226
 Tyr Thr Phe Lys Asn Pro Lys Lys Asn Lys Lys Met Lys Pro Asn Ser
 1 5 10 15
 Ile Ile Phe Leu Glu Asn Thr Lys His Tyr Pro Asp Ile Phe Arg Glu
 20 25 30
 Gly Phe Val Arg Asp Arg His Gly Leu Met Glu Ala Ser Asp Trp Leu
 35 40 45
 Leu Ser Thr Glu Ile Thr Ile Ile Arg Ser Ile Leu Gly Ala Ile Pro
 50 55 60
 Ile Leu Gly Asn Ile Leu Gly Ala Gly Arg Leu Tyr Ser Val Trp Tyr
 65 70 75 80
 Thr Ser Asp Glu Asp Trp Lys Lys Gln Val Val
 85 90

<210> 227
 <211> 232
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 227
 Asn Ser Phe Thr Ile Lys Phe Leu Leu Met Thr Lys Asn Ala Ile Asn
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 Ser Gln Thr Thr Thr Pro Gln Pro Asn Leu Thr Asp Ala Glu Pro Ile
 20 25 30
 Ala Ser Arg Ala Gln Cys Lys Ser Ile Ala Val Ile Ile Ser Leu Phe
 35 40 45
 Ala Leu Gly Met Leu Leu Leu Cys Leu Gly Ile Ile Leu Ile Ser Ile
 50 55 60
 Pro Ile Pro Gly Leu Ala Ala Gln Val Ala Leu Gly Leu Gly Ile Val
 65 70 75 80
 Ser Leu Ile Leu Gly Ile Ala Leu Ala Asn Ile Gly Phe Leu Cys Leu
 85 90 95
 Leu Leu Arg Cys Lys Gln Val Pro Gln Lys Pro Asp Thr Leu Pro Ser
 100 105 110
 Glu Ser Ser Lys Gln Pro Ser Glu Gly Ser Thr Pro Thr Ala Leu Pro
 115 120 125
 Trp Gln Ala Gly Glu Phe Leu Glu Lys Val Gln Val Ser Ala Thr Pro
 130 135 140
 Ile Leu Leu Pro Lys Asn Lys Asp Glu Glu Leu Ser Ala Lys Val Met
 145 150 155 160
 Lys Glu Gly Ala Glu Ala Ala Ser Ser Ile Lys Gln Ala Val Leu Glu
 165 170 175
 Ser Thr Glu Lys Leu Ile Asp Ala Arg Lys Gln Glu Glu Ser Arg Arg
 180 185 190
 Glu Ala Arg Lys Lys Ile Val Ala Glu Glu Ala Glu Ala Ser Arg Lys
 195 200 205
 Arg Ile Gln Gln Gln Met Ala Ala Asp Gln Glu Ala Leu Arg Lys Arg
 210 215 220
 Lys Glu Glu Val Ala Lys Arg Lys
 225 230

<210> 228
 <211> 141
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 228
 Ala Ile Phe Asn Arg Lys Arg Met Pro Tyr Tyr Ala Asn Thr Leu Glu
 1 5 10 15
 Phe Ile Gln Gly Thr Gln Ser Leu Cys Pro Leu Phe Lys Tyr Gly Phe
 20 25 30

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Arg | His | His | Tyr | Lys | Gly | Gln | Leu | Glu | Ile | Glu | Asp | Ala | Ser | His |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Asp | Trp | Asp | Phe | Leu | Glu | Pro | Ser | Thr | Trp | Lys | Arg | Thr | Leu | Leu | |
| | 50 | | | | 55 | | | | | 60 | | | | | |
| Ala | Ala | Ile | Pro | Ile | Leu | Gly | Ser | Val | Ile | Gly | Leu | Gly | Arg | Leu | Phe |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ser | Ile | Trp | Ser | Ile | Arg | Glu | Pro | Gln | Asp | Ser | Gln | Glu | Tyr | Lys | Ser |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Ile | Phe | Trp | His | Thr | Leu | Cys | Ala | Val | Leu | Glu | Ile | Leu | Gly | Leu | Gly |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ile | Val | Ala | Leu | Ile | Leu | Lys | Ile | Leu | Ala | Thr | Phe | Ile | Met | Ala | Met |
| | | 115 | | | | | 120 | | | | | | 125 | | |
| Pro | Gly | Leu | Lys | Arg | Val | Ala | Thr | Phe | Leu | Phe | Tyr | Ser | | | |
| | 130 | | | | | 135 | | | | | | 140 | | | |

<210> 229

<211> 153

<212> PRT

<213> Chlamydia pneumoniae

<400> 229

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Glu | Arg | Phe | Asn | Ile | Phe | Val | Ser | Cys | Lys | Leu | Leu | Lys | Glu | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Met | Met | Ile | Asn | Phe | Ile | Arg | Ser | Tyr | Ala | Leu | Tyr | Phe | Ala | Trp | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ile | Ser | Cys | Ala | Gly | Thr | Leu | Ile | Ser | Ile | Phe | Tyr | Ser | Tyr | Ile | Leu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Asn | Val | Glu | Pro | Cys | Ile | Leu | Cys | Tyr | Tyr | Gln | Arg | Ile | Cys | Leu | Phe |
| | 50 | | | | 55 | | | | | 60 | | | | | |
| Pro | Leu | Thr | Val | Ile | Leu | Gly | Ile | Ser | Ala | Tyr | Arg | Glu | Asp | Ser | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ile | Lys | Leu | Tyr | Ile | Leu | Pro | Gln | Ala | Val | Leu | Gly | Leu | Gly | Ile | Ser |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Ile | Tyr | Gln | Val | Phe | Leu | Gln | Glu | Ile | Pro | Gly | Met | Gln | Leu | Asp | Ile |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Cys | Gly | Arg | Val | Ser | Cys | Ser | Thr | Lys | Ile | Phe | Leu | Phe | Ser | Tyr | Val |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Thr | Ile | Pro | Met | Ala | Ser | Val | Val | Ala | Phe | Gly | Ala | Ile | Val | Cys | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Leu | Val | Leu | Thr | Lys | Lys | Tyr | Arg | Gly | | | | | | | |
| 145 | | | | | | 150 | | | | | | | | | |

<210> 230

<211> 277

<212> PRT

<213> Chlamydia pneumoniae

<400> 230

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Lys | Asp | Arg | Ala | Asp | Phe | Leu | Asn | Leu | Lys | Glu | Lys | Phe | Ser | Cys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Ile | Leu | Lys | Lys | Glu | Asn | Ala | Phe | Glu | Phe | Tyr | Val | Phe | Cys | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ile | Lys | Gln | Leu | Thr | Asn | Ser | Ser | Leu | Arg | Gly | Pro | Leu | Asn | Lys | Lys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ile | Leu | Val | Leu | Cys | Thr | Ala | Met | Phe | Phe | Ile | Val | Cys | Phe | Gly | Phe |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Leu | Ile | His | Lys | Lys | His | Thr | Ile | Leu | Pro | Pro | Lys | Ala | His | Ile | Pro |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Thr | Asn | Ala | Lys | His | Phe | Pro | Thr | Ile | Gly | Asn | Pro | Tyr | Ala | Pro | Ile |
| | | | | 85 | | | | | 90 | | | | | 95 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ile | Thr | Val | Phe | Glu | Glu | Pro | Ser | Cys | Ser | Ala | Cys | Ala | Glu | Phe |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Thr | Thr | Glu | Val | Phe | Pro | Leu | Leu | Lys | Lys | His | Tyr | Ile | Asp | Thr | Gly |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Glu | Ile | Ser | Phe | Thr | Leu | Ile | Pro | Val | Cys | Phe | Ile | Arg | Gly | Ser | Lys |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Pro | Ala | Ala | Gln | Ala | Leu | Leu | Cys | Ile | Tyr | His | His | Asp | Pro | Arg | Gln |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | Asp | Ile | Asp | Ala | Tyr | Met | Glu | Tyr | Phe | His | Arg | Ile | Leu | Thr | Tyr |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Pro | Lys | Glu | Glu | Gly | Ser | His | Trp | Ala | Thr | Pro | Glu | Val | Leu | Thr | Lys |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Leu | Ala | Glu | Gly | Leu | Lys | Ile | Asn | Ser | Gly | Arg | Ser | Val | Asn | Pro | Lys |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Gly | Leu | Glu | Gln | Cys | Ile | Ala | Ser | Gly | Gln | Tyr | Asn | Glu | Gln | Ile | Lys |
| | 210 | | | | | 215 | | | | 220 | | | | | |
| Lys | Asn | Asn | Leu | Tyr | Gly | Ser | Gln | Val | Leu | Gly | Gly | Gln | Leu | Ala | Thr |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Pro | Thr | Ala | Val | Val | Gly | Asp | Tyr | Leu | Ile | Glu | Asp | Pro | Thr | Phe | His |
| | | | 245 | | | | | 250 | | | | | | 255 | |
| Glu | Ile | Glu | Arg | Ala | Ile | Gln | His | Ile | Arg | Gln | Leu | Gln | Ala | Val | Glu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Gly | Asp | His | Asp | Asp | | | | | | | | | | | |
| | | | 275 | | | | | | | | | | | | |

<210> 231

<211> 466

<212> PRT

<213> Chlamydia pneumoniae

<400> 231

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ser | Lys | Ala | Phe | Ser | Phe | Leu | Arg | Ile | Glu | Gln | Glu | Asn | Phe | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Phe | Lys | Phe | Lys | Lys | Ser | Ala | Leu | Ser | Phe | Thr | Tyr | Asn | Thr | Ala | Asn |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Thr | Lys | Ser | Thr | Phe | Thr | Phe | Ile | Leu | Leu | Leu | Leu | Leu | Arg | Lys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Lys | Asp | Gln | Gly | Leu | Arg | Phe | Met | Asp | Lys | Glu | Thr | Leu | Glu | Asn | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Tyr | Arg | His | Phe | Arg | Tyr | Arg | Phe | Leu | Lys | Leu | Asn | Ile | Leu | Pro | Ala |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | |
| Phe | Leu | Gly | Leu | Leu | Leu | Leu | Cys | Ser | Pro | Asn | Thr | Leu | Asn | Tyr | Thr |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Gln | Val | Asp | Val | Ile | Phe | Ser | Asp | Arg | Leu | Cys | Ser | Cys | Leu | Leu | Ile |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Phe | Leu | Ala | Ile | Ala | Ser | Leu | Thr | Lys | Arg | Ser | Leu | Leu | Trp | Leu | Gly |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ala | Pro | Leu | Gly | Ile | Trp | Val | Thr | Leu | Phe | Ala | Cys | Val | Ala | Gly | Arg |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ser | Pro | Thr | Ile | Phe | Ala | Asn | Asp | Thr | Leu | Ile | Gly | Phe | Ala | Ile | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | Val | Val | Cys | Ile | Ser | Pro | Thr | Arg | Pro | Glu | Ala | Leu | Glu | Val | Gly |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Pro | Thr | Leu | Pro | Glu | Gly | Phe | Ser | Tyr | Asn | Pro | Ser | Ala | Gly | Gly | Arg |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Arg | Ala | Ala | Val | Leu | Phe | Leu | Ser | Leu | Leu | Gly | Trp | Leu | Glu | Ala | Arg |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Tyr | Leu | Thr | Ala | Ser | Ser | Leu | Gly | Ile | Thr | Ser | Ser | Gln | Ser | Ser | Asn |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Phe | Leu | Leu | Leu | Tyr | Ser | Ser | Ile | Met | Thr | Val | Tyr | Ser | Leu | Leu | Val |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Leu | Ser | Leu | Ala | Gly | Ser | Glu | Arg | Arg | Trp | His | Thr | Arg | Pro | Lys |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ile | Val | Ile | Ala | Thr | Ala | Leu | Ala | Leu | Thr | Gly | Val | Ile | Ile | Leu | Thr |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Leu | Pro | Ile | Ile | Leu | His | Gln | Leu | Arg | Tyr | Asp | Cys | Trp | Leu | Cys |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Cys | Leu | Thr | Ile | Glu | Pro | Ala | Leu | Ala | Val | Val | Phe | Ala | Tyr | Asp |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Glu | Thr | Arg | Ala | Thr | Leu | Arg | Tyr | Ile | Ser | Gln | Phe | Leu | Gly | Asp | Lys |
| 305 | | | | | 310 | | | | | 315 | | | | 320 | |
| Arg | Ala | Leu | Thr | Arg | Ala | Ser | Phe | Phe | Gly | Ser | Glu | Tyr | Tyr | Lys | His |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Thr | Leu | Ser | Trp | Glu | Glu | Arg | Thr | Val | Leu | Pro | Leu | Arg | Lys | Ala | Tyr |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Lys | Gln | Ala | Phe | Glu | Gly | Ile | Ser | Phe | Pro | Ile | Asn | Gln | Leu | Leu | Ala |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ile | Leu | Val | Ala | Thr | Val | Phe | Val | Lys | Val | Asn | Ser | Ser | Met | Gly | Leu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Pro | Thr | Phe | Pro | Arg | Asn | Phe | Leu | Asn | Ile | Cys | Cys | Trp | Phe | Ile | Ile |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Val | Leu | Phe | Ile | Leu | Ala | Phe | Ala | Glu | Ser | Leu | Arg | His | Leu | Arg | Trp |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Met | Asn | Leu | Ile | Phe | Ser | Ala | Ala | Ile | Leu | Phe | Ser | Pro | Val | Leu | Phe |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| His | Ile | Pro | Val | Glu | Ser | Pro | Met | Phe | Leu | Pro | Ile | Ile | Val | Thr | Gly |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Leu | Ile | Leu | Ile | Ile | Leu | Ser | Ile | Gly | Lys | Arg | Arg | Arg | Thr | Lys | Arg |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Lys | Leu | | | | | | | | | | | | | | |
| 465 | | | | | | | | | | | | | | | |

<210> 232
 <211> 234
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 232

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Phe | Lys | Lys | Ala | Leu | Ile | Tyr | Met | Ser | Ser | Gln | Pro | Leu | Val | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Thr | Ser | Ser | Ser | Leu | Ser | Arg | Tyr | Val | Val | Leu | Thr | Gly | Glu | Glu | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Val | Ala | Cys | Tyr | Lys | Lys | Ala | Phe | Asn | His | Ile | Trp | His | Gly | Ala | Pro |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ala | Ile | Ile | Leu | Ala | Ala | Ala | Leu | Leu | Met | Phe | Cys | Ile | Phe | Gly | Phe |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Val | Leu | Gly | Ser | Ile | Leu | Leu | Gly | Ala | Pro | Leu | Glu | Gly | Ala | Ser | Ile |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Leu | Tyr | Asp | Val | Ile | Leu | Pro | Trp | Leu | Leu | Pro | Ser | Ile | Leu | Val | Phe |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Val | Leu | Leu | Val | Leu | Pro | Leu | Asn | Ile | Tyr | Ala | Tyr | Ser | His | His | Lys |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gln | Val | Leu | Ala | Leu | His | Glu | Arg | Ile | Thr | Gln | Ser | Asn | Tyr | Lys | Glu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ile | Tyr | Asp | His | Cys | Glu | Lys | Glu | Lys | Lys | Thr | Pro | Asn | Lys | Lys | Ala |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Leu | Ser | Leu | Tyr | Ile | Glu | Ser | Gln | Val | Leu | Val | Pro | Glu | Tyr | Ser | Lys |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | |
| Arg | Phe | Ser | Ser | Met | Ile | Leu | Gly | Lys | Thr | Leu | Lys | Ile | Ile | Pro | Lys |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Lys | Asp | Ser | Pro | Glu | Ser | Leu | Lys | His | Asp | Glu | Leu | Ile | Gln | Lys | Ala |
| | | | 180 | | | | | 185 | | | | | 190 | | |

Leu Glu Arg Ala Lys Glu Asn Ile Tyr Met Asn Lys Asn Gln Arg Glu
 195 200 205
 Lys Arg Asp Glu Arg Glu Ala Lys Lys Glu Ala Lys Asn Ala Ser Lys
 210 215 220
 Thr Asn Pro Leu Trp Glu Gly Leu Gly Thr
 225 230

<210> 233
 <211> 248
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 233
 Pro Gln Ala Phe Val Ser Ile Gln Asp Arg Gly Phe Ser Met Leu Gln
 1 5 10 15
 Ala His Arg Leu Cys Tyr Ser Cys Asp Asn Gln Val Ile Leu Lys Asp
 20 25 30
 Ala Ser Phe Gln Ala Ser Pro Gly Thr Ile Thr Ile Ile Leu Gly Ser
 35 40 45
 Ser Gly Val Gly Lys Thr Thr Leu Phe Arg Leu Leu Ala Gly Phe Leu
 50 55 60
 Pro Leu Gln Glu Gly Glu Leu Leu Trp Asn Gly Ser Pro Leu Asn Arg
 65 70 75 80
 Lys Asp Val Ala Tyr Met Gln Gln Lys Glu Ala Leu Leu Pro Trp Arg
 85 90 95
 Thr Ala Leu Lys Asn Met Thr Leu Ser Thr Glu Leu Gly Ile Asn Thr
 100 105 110
 Ser His Asn Ala Leu Ser Asn Glu Arg Leu Glu Glu Ile Ile His Asn
 115 120 125
 Phe Asp Leu Gly Gln Leu Leu Asp Arg Tyr Pro Asp Glu Leu Ser Gly
 130 135 140
 Gly Gln Arg Gln Arg Ile Ala Leu Ala Ala Gln Cys Leu Ser Leu Lys
 145 150 155 160
 Pro Ile Leu Leu Leu Asp Glu Pro Phe Ser Ser Leu Asp Val Leu Leu
 165 170 175
 Lys Glu Gln Leu Tyr Gln Asp Ile Val Ala Leu Ala Lys Lys Glu Asn
 180 185 190
 Lys Thr Val Leu Leu Val Thr His Asp Phe His Asp Val Ser Cys Leu
 195 200 205
 Gly Asp Val Leu Tyr Val Ile Lys Asn Lys Thr Leu Thr Pro Val Pro
 210 215 220
 Leu Asp Pro Ser Met Arg Pro Leu Asn Asn Gly Leu Cys Phe Ile Lys
 225 230 235 240
 Asp Leu Lys Lys His Leu Tyr Thr
 245

<210> 234
 <211> 301
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 234
 Lys Lys Phe Leu Met Arg Arg Phe Leu Phe Leu Ile Leu Ser Ser Leu
 1 5 10 15
 Pro Leu Val Ala Phe Ser Ala Asp Asn Phe Thr Ile Leu Glu Glu Lys
 20 25 30
 Gln Ser Pro Leu Ser Arg Val Ser Ile Ile Phe Ala Leu Pro Gly Val
 35 40 45
 Thr Pro Val Ser Phe Asp Gly Asn Cys Pro Ile Pro Trp Phe Ser His
 50 55 60

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Lys | Lys | Thr | Leu | Glu | Gly | Gln | Arg | Ile | Tyr | Tyr | Ser | Gly | Asp | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Phe | Gly | Lys | Tyr | Phe | Val | Val | Ser | Ala | Leu | Trp | Pro | Asn | Lys | Val | Ser |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ser | Ala | Val | Val | Ala | Cys | Asn | Met | Ile | Leu | Lys | His | Arg | Val | Asp | Leu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ile | Leu | Ile | Ile | Gly | Ser | Cys | Tyr | Ser | Arg | Ser | Gln | Asp | Ser | Arg | Phe |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Ser | Val | Leu | Val | Ser | Lys | Gly | Tyr | Ile | Asn | Tyr | Asp | Ala | Asp | Val |
| | | 130 | | | | 135 | | | | | 140 | | | | |
| Arg | Pro | Phe | Phe | Glu | Arg | Phe | Glu | Ile | Pro | Asp | Ile | Lys | Lys | Ser | Val |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Phe | Ala | Thr | Ser | Glu | Val | His | Arg | Glu | Ala | Ile | Leu | Arg | Gly | Gly | Glu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Glu | Phe | Ile | Ser | Thr | His | Lys | Gln | Glu | Ile | Glu | Glu | Leu | Leu | Lys | Thr |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| His | Gly | Tyr | Leu | Lys | Ser | Thr | Thr | Lys | Thr | Glu | His | Thr | Leu | Met | Glu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Gly | Leu | Val | Ala | Thr | Gly | Glu | Ser | Phe | Ala | Met | Ser | Arg | Asn | Tyr | Phe |
| | | 210 | | | | 215 | | | | | 220 | | | | |
| Leu | Ser | Leu | Gln | Lys | Leu | Tyr | Pro | Glu | Ile | His | Gly | Phe | Asp | Ser | Val |
| 225 | | | | 230 | | | | | | 235 | | | | | 240 |
| Ser | Gly | Ala | Val | Ser | Gln | Val | Cys | Tyr | Glu | Tyr | Ser | Ile | Pro | Cys | Leu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Gly | Val | Asn | Ile | Leu | Leu | Pro | His | Pro | Leu | Glu | Ser | Arg | Ser | Asn | Glu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Asp | Trp | Lys | His | Leu | Gln | Ser | Glu | Ala | Ser | Lys | Ile | Tyr | Met | Asp | Thr |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Leu | Lys | Ser | Val | Leu | Lys | Glu | Leu | Cys | Ser | Ser | His | | | |
| | 290 | | | | | 295 | | | | | 300 | | | | |

<210> 235
 <211> 64
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 235 | | | | | | | | | | | | | | | |
| Glu | Lys | Ala | Arg | Thr | Met | Phe | Leu | Gly | Lys | Val | Leu | Leu | Phe | Leu | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Arg | Ile | Ser | Arg | Arg | Ser | Tyr | Val | Gln | Glu | Ile | Gly | Ile | Phe | Phe | His |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Glu | Thr | Pro | Asp | Leu | Lys | Ile | Val | Leu | Cys | Ala | Phe | Val | Ser | Thr |
| | | 35 | | | | 40 | | | | | 45 | | | | |
| Phe | Ile | Val | Val | Glu | Met | Asp | Val | Ser | Leu | Lys | Asn | Lys | Gly | Gln | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |

<210> 236
 <211> 233
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 236 | | | | | | | | | | | | | | | |
| Phe | Ile | Met | Leu | Gln | Ser | Cys | Lys | Lys | Ala | Leu | Leu | Ser | Ile | Val | Val |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Ile | Leu | Ala | Phe | His | Pro | Ile | Pro | Gly | Met | Gly | Val | Glu | Ala | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ser | Gly | Phe | Leu | Gly | Lys | Val | Lys | Gly | Trp | Phe | Ser | Lys | Lys | Glu | Ile |
| | | 35 | | | | 40 | | | | | 45 | | | | |
| Gln | Glu | Glu | Ala | Arg | Ile | Leu | Pro | Val | Lys | Asp | Ser | Leu | Ser | Trp | Lys |
| | 50 | | | | | 55 | | | | | 60 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Tyr | Asp | Tyr | Thr | Ser | Ser | Ser | Gly | Phe | Ser | Val | Glu | Phe | Pro | Gly |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 |
| Glu | Pro | Asp | His | Ser | Gly | Gln | Ile | Val | Glu | Val | Pro | Gln | Ser | Glu | Ile |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Thr | Ile | Arg | Tyr | Asp | Thr | Tyr | Val | Thr | Glu | Thr | His | Pro | Asp | Asn | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Tyr | Val | Val | Ser | Val | Trp | Glu | Tyr | Pro | Glu | Lys | Val | Asp | Ile | Ser |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Arg | Pro | Glu | Leu | Asn | Leu | Gln | Glu | Gly | Phe | Ser | Gly | Met | Met | Gln | Ala |
| | 130 | | | | | 135 | | | | | | 140 | | | |
| Leu | Pro | Glu | Ser | Gln | Val | Leu | Phe | Met | Gln | Ala | Arg | Gln | Ile | Gln | Gly |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| His | Lys | Ala | Leu | Glu | Phe | Trp | Ile | Val | Cys | Glu | Asp | Val | Tyr | Phe | Arg |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Gly | Met | Leu | Ile | Ser | Val | Asn | His | Thr | Leu | Tyr | Gln | Val | Phe | Met | Val |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Tyr | Lys | Asn | Lys | Asn | Pro | Gln | Ala | Leu | Asp | Lys | Glu | Tyr | Glu | Ala | Phe |
| | | 195 | | | | 200 | | | | | | 205 | | | |
| Ser | Gln | Ser | Phe | Lys | Ile | Thr | Lys | Ile | Arg | Glu | Pro | Arg | Thr | Ile | Pro |
| | 210 | | | | | 215 | | | | | | 220 | | | |
| Ser | Ser | Val | Lys | Lys | Lys | Val | Ser | Leu | | | | | | | |
| 225 | | | | | | 230 | | | | | | | | | |

<210> 237

<211> 261

<212> PRT

<213> Chlamydia pneumoniae

<400> 237

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Phe | Val | Arg | Tyr | Leu | Leu | Met | Lys | Pro | Glu | Glu | Ser | Glu | Cys | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Cys | Ile | Gly | Val | Leu | Pro | Ala | Arg | Trp | Asn | Ser | Ser | Arg | Tyr | Pro | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Lys | Pro | Leu | Ala | Lys | Ile | His | Gly | Lys | Ser | Leu | Ile | Gln | Arg | Thr | Tyr |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Glu | Asn | Ala | Ser | Gln | Ser | Ser | Leu | Leu | Asp | Lys | Ile | Val | Val | Ala | Thr |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Asp | Asp | Gln | His | Ile | Ile | Asp | His | Val | Thr | Asp | Phe | Gly | Gly | Tyr | Ala |
| 65 | | | | 70 | | | | | 75 | | | | | | 80 |
| Val | Met | Thr | Ser | Pro | Thr | Cys | Ser | Asn | Gly | Thr | Glu | Arg | Thr | Gly | Glu |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Val | Ala | Arg | Lys | Tyr | Phe | Pro | Lys | Ala | Glu | Ile | Ile | Val | Asn | Ile | Gln |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gly | Asp | Glu | Pro | Cys | Leu | Asn | Ser | Glu | Val | Val | Asp | Ala | Leu | Val | Gln |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Lys | Leu | Arg | Ser | Ser | Pro | Glu | Ala | Glu | Leu | Val | Thr | Pro | Val | Ala | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Thr | Thr | Asp | Arg | Glu | Glu | Ile | Leu | Thr | Glu | Lys | Lys | Val | Lys | Cys | Val |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Phe | Asp | Ser | Glu | Gly | Arg | Ala | Leu | Tyr | Phe | Ser | Arg | Ser | Pro | Ile | Pro |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Phe | Ile | Leu | Lys | Ala | Thr | Pro | Val | Tyr | Leu | His | Ile | Gly | Val | Tyr | |
| | | 180 | | | | | 185 | | | | | 190 | | | |
| Ala | Phe | Lys | Arg | Glu | Ala | Leu | Phe | Arg | Tyr | Leu | Gln | His | Ser | Ser | Thr |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Pro | Leu | Ser | Asp | Ala | Glu | Asp | Leu | Glu | Gln | Leu | Arg | Phe | Leu | Glu | His |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gly | Gly | Lys | Ile | His | Val | Cys | Ile | Val | Asp | Ala | Lys | Ser | Pro | Ser | Val |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Asp | Tyr | Pro | Glu | Asp | Ile | Ala | Lys | Val | Glu | Gln | Tyr | Ile | Thr | Cys | Leu |
| | | | | 245 | | | | | 250 | | | | | 255 | |

Ser Asn Ala Tyr Phe
260

<210> 238

<211> 543

<212> PRT

<213> Chlamydia pneumoniae

<400> 238

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Arg | Thr | Ile | Tyr | His | Met | Pro | Phe | Lys | Cys | Ile | Phe | Leu | Thr | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Val | Val | Ser | Ser | Leu | Gly | Lys | Gly | Leu | Thr | Ala | Ala | Ser | Leu | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Ile | Leu | Glu | Arg | Gln | Arg | Leu | Asn | Val | Ala | Met | Leu | Lys | Leu | Asp |
| | | | 35 | | | | 40 | | | | | 45 | | | |
| Pro | Tyr | Leu | Asn | Val | Asp | Pro | Gly | Thr | Met | Asn | Pro | Phe | Glu | His | Gly |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Glu | Ile | Tyr | Val | Thr | Asp | Asp | Gly | Val | Glu | Thr | Asp | Leu | Asp | Leu | Gly |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| His | Tyr | His | Arg | Phe | Ser | Ser | Ala | Ala | Leu | Ser | Arg | His | Ser | Ser | Ala |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Thr | Ser | Gly | Gln | Ile | Tyr | Ala | Arg | Val | Ile | Lys | Arg | Glu | Arg | Glu | Gly |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asp | Tyr | Leu | Gly | Ser | Thr | Val | Gln | Val | Ile | Pro | His | Ile | Thr | Asn | Glu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ile | Ile | Gln | Val | Ile | Leu | Asp | Ala | Ala | Lys | Glu | His | Ser | Pro | Asp | Val |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Leu | Ile | Val | Glu | Ile | Gly | Gly | Thr | Ile | Gly | Asp | Ile | Glu | Ser | Leu | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Phe | Leu | Glu | Ala | Ile | Arg | Gln | Phe | Arg | Tyr | Asp | His | Ser | Glu | Asp | Cys |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Asn | Ile | His | Met | Thr | Tyr | Val | Pro | Tyr | Leu | Gln | Ala | Ala | Asp | Glu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Val | Lys | Ser | Lys | Pro | Thr | Gln | His | Ser | Val | Gln | Thr | Leu | Arg | Gly | Ile |
| | | 195 | | | | 200 | | | | | | 205 | | | |
| Gly | Ile | Ile | Pro | Asp | Ala | Ile | Leu | Cys | Arg | Ser | Glu | Lys | Pro | Leu | Thr |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gln | Glu | Val | Lys | Ser | Lys | Ile | Ser | Leu | Phe | Cys | Asn | Val | Pro | Asn | Arg |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ala | Val | Phe | Asn | Val | Ile | Asp | Val | Lys | His | Thr | Ile | Tyr | Glu | Met | Pro |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Leu | Met | Leu | Ala | Gln | Glu | Lys | Ile | Ala | Asn | Phe | Ile | Gly | Glu | Lys | Leu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Lys | Leu | Ala | Thr | Val | Pro | Glu | Asn | Leu | Asp | Asp | Trp | Lys | Val | Leu | Val |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Asn | Gln | Leu | Ser | Gln | Asp | Leu | Pro | Lys | Val | Lys | Ile | Gly | Val | Val | Gly |
| | | 290 | | | | 295 | | | | | 300 | | | | |
| Lys | Tyr | Val | Gln | His | Arg | Asp | Ala | Tyr | Lys | Ser | Ile | Phe | Glu | Ala | Leu |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Thr | His | Ala | Ala | Leu | Arg | Leu | Gly | His | Ala | Ala | Glu | Ile | Ile | Pro | Ile |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Asp | Ala | Glu | Asp | Glu | Asn | Leu | Thr | Met | Glu | Leu | Ser | Gln | Cys | Asp | Ala |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Cys | Leu | Val | Pro | Gly | Gly | Phe | Gly | Val | Arg | Gly | Trp | Glu | Gly | Lys | Ile |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ala | Ala | Ala | Lys | Phe | Cys | Arg | Glu | Gln | Gly | Ile | Pro | Tyr | Phe | Gly | Ile |
| | | 370 | | | | 375 | | | | | 380 | | | | |
| Cys | Leu | Gly | Met | Gln | Val | Leu | Val | Val | Glu | Tyr | Ala | Arg | Asn | Val | Leu |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Asn | Leu | Asp | Gln | Ala | Asn | Ser | Leu | Glu | Met | Asp | Pro | Asn | Thr | Pro | His |
| | | | | 405 | | | | | 410 | | | | | 415 | |

Pro Ile Val Tyr Val Met Glu Gly Gln Asp Pro Leu Val Ala Thr Gly
 420 425 430
 Gly Thr Met Arg Leu Gly Ala Tyr Pro Cys Leu Leu Lys Pro Gly Ser
 435 440 445
 Lys Ala His Lys Ala Tyr Asn Glu Ser Ser Leu Ile Gln Glu Arg His
 450 455 460
 Arg His Arg Tyr Glu Val Asn Pro Asp Tyr Ile Gln Ser Leu Glu Asp
 465 470 475 480
 His Gly Leu Arg Ile Val Gly Thr Cys Pro Pro Gln Gly Leu Cys Glu
 485 490 495
 Ile Ile Glu Val Ser Asp His Pro Trp Met Ile Gly Val Gln Phe His
 500 505 510
 Pro Glu Phe Val Ser Lys Leu Ile Ser Pro His Pro Leu Phe Ile Ala
 515 520 525
 Phe Ile Glu Ala Ala Leu Val Tyr Ser Lys Asp Ala Ser His Val
 530 535 540

<210> 239
 <211> 158
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 239
 Ser Ile Leu Arg Met Gln Ala Met Ser Lys Pro Ser Ser Cys Lys Ala
 1 5 10 15
 Tyr Leu Gly Ile Asp Tyr Gly Lys Lys Arg Ile Gly Leu Ala Tyr Ala
 20 25 30
 Ala Glu Pro Leu Leu Leu Thr Leu Pro Ile Gly Asn Ile Glu Ala Gly
 35 40 45
 Lys Asn Leu Lys Leu Ser Ala Glu Ala Leu His Lys Ile Ile Leu Ser
 50 55 60
 Arg Asn Ile Thr Cys Val Val Leu Gly Asn Pro Leu Pro Met Gln Lys
 65 70 75 80
 Gly Leu Tyr Ser Ser Leu Gln Glu Glu Val Ser Leu Leu Ala Glu Glu
 85 90 95
 Leu Lys Lys Leu Ser Thr Val Glu Ile Leu Trp Asp Glu Arg Leu
 100 105 110
 Ser Ser Val Gln Ala Glu Arg Met Leu Lys Gln Asp Cys Gly Leu Ser
 115 120 125
 Arg Lys Asp Arg Lys Gly Lys Thr Asp Ser Leu Ala Ala Thr Leu Ile
 130 135 140
 Leu Thr Ser Phe Leu Asp Ser Leu Pro Lys Lys Leu Thr Leu
 145 150 155

<210> 240
 <211> 543
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 240
 Pro Cys Asn His Gln Lys Leu Arg Asp Phe Asn Phe Arg Asn Phe Leu
 1 5 10 15
 Leu Phe Val Ile Phe Ala Ser Ala Gly Thr Lys Lys Glu Ile Lys Met
 20 25 30
 Thr Asn Val Val Gln Glu Thr Ile Gly Gly Leu Asn Ser Pro Arg Thr
 35 40 45
 Cys Pro Pro Cys Ile Leu Val Ile Phe Gly Ala Thr Gly Asp Leu Thr
 50 55 60
 Ala Arg Lys Leu Leu Pro Ala Leu Tyr His Leu Thr Lys Glu Gly Arg
 65 70 75 80

<210> 241
 <211> 270
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 241
 Lys Ser Ile Ser Met Thr Asn Ile Gly Ile Glu Thr Met Ala Thr Leu
 1 5 10 15
 Ile Asn Phe Asn Asp Thr Asn Lys Leu Leu Leu Thr Lys Gln Pro Ser
 20 25 30
 Leu Phe Ile Asp Leu Ala Ser Lys Asp Trp Ile Ala Ser Ala Asn Gln
 35 40 45
 Ala Ile Lys Gln Arg Gly Ala Phe Tyr Val Ala Leu Ser Gly Gly Lys
 50 55 60
 Thr Pro Leu Glu Ile Tyr Lys Asp Ile Val Ile Asn Lys Asp Lys Leu
 65 70 75 80
 Ile Asp Pro Ser Lys Ile Phe Leu Phe Trp Gly Asp Glu Arg Leu Ala
 85 90 95
 Pro Ile Thr Ser Ser Glu Ser Asn Tyr Gly Gln Ala Met Ser Ile Leu
 100 105 110
 Arg Asp Leu Asn Ile Pro Asp Glu Gln Ile Phe Arg Met Glu Thr Glu
 115 120 125
 Asn Pro Asp Gly Ala Lys Lys Tyr Gln Glu Leu Ile Glu Asn Lys Ile
 130 135 140
 Pro Asp Ala Ser Phe Asp Met Ile Met Leu Gly Leu Gly Glu Asp Gly
 145 150 155 160
 His Thr Leu Ser Leu Phe Ser Asn Thr Ser Ala Leu Glu Glu Glu Asn
 165 170 175
 Asp Leu Val Val Phe Asn Ser Val Pro His Leu Glu Thr Glu Arg Met
 180 185 190
 Thr Leu Thr Phe Pro Cys Val His Lys Gly Lys His Val Val Val Tyr
 195 200 205
 Val Gln Gly Glu Asn Lys Lys Pro Ile Leu Lys Ser Val Phe Phe Ser
 210 215 220
 Glu Gly Arg Glu Glu Lys Leu Tyr Pro Ile Glu Arg Val Gly Arg Asp
 225 230 235 240
 Arg Ser Pro Leu Phe Trp Ile Ile Ser Pro Glu Ser Tyr Asp Ile Ala
 245 250 255
 Asp Phe Asp Asn Ile Ser Ser Ile Tyr Lys Met Asp Ile Leu
 260 265 270

<210> 242
 <211> 388
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 242
 Leu Val Tyr Phe Met Val Phe Ser Pro Ser Ser Glu Ser Val Val Lys
 1 5 10 15
 Ala Asn Ser Val Val Arg Ser Asn Phe Cys Tyr Phe Leu Glu Asn Lys
 20 25 30
 Phe Val Ser Pro Ser Glu Ser Thr Glu Val Met Phe Ser Glu Ile Met
 35 40 45
 Lys Gly Arg Val Pro Asp Ile Glu Ser Leu Phe Asp Arg Pro Thr Asp
 50 55 60
 Met Met Met Thr Gly Phe Lys Ala Ala Gln Asn Leu Gly Asn Leu Phe
 65 70 75 80
 Asn Ser Phe Gly Ile Leu Ile Met Cys Phe Ser Gln Cys Lys Ser Cys
 85 90 95
 Gln Thr Pro Glu Lys Glu Thr Ser Ala Ile Val Leu Gly Ala Thr Leu
 100 105 110

Leu Phe Phe Val Val Ala Leu Ile Leu Gly Pro Thr Leu Gly Ala Leu
 115 120 125
 Val Tyr Cys Ala Tyr Lys Val Tyr Thr Leu Gly Lys Met Ile Tyr Ser
 130 135 140
 Leu Asn Lys Ala Lys Ala Lys Val Leu Arg His Pro Ala Gln Asn Val
 145 150 155 160
 Phe His Arg Ala Ala Gly Val Ala Thr Ile Arg Ser Ser Glu Glu Ala
 165 170 175
 Val Lys Ala Cys Lys Leu Tyr Lys Ser Ala Met Ile Gly Ser Leu Val
 180 185 190
 Val Ser Leu Ile Ala Ser Leu Ala Leu Ile Ala Leu Thr Ala Gly Ile
 195 200 205
 Val Leu Val Leu Phe Phe Val Ala Pro Gly Ala Ala Pro Val Ile Thr
 210 215 220
 Ala Ala Met Met Gly Cys Cys Ala Ala Gly Gly Gly Ala Leu Leu Ile
 225 230 235 240
 Ser Leu Leu Gly Leu Trp Ile Ala Ile Val Arg Lys Ala Lys His Gln
 245 250 255
 Glu Ala Cys Val Gly His Leu Thr Asn Val Val Leu His Thr Ala Val
 260 265 270
 Ser Glu Ala Leu Leu His Asp Pro Ser His Phe Gln Thr Asn Ala Leu
 275 280 285
 Ala Arg Asp Leu Phe Leu Thr Asp Cys Leu Ser His Tyr Gly His Leu
 290 295 300
 Phe Ser Asn Glu Glu Val Ala Gln Leu Val Gln Gly Gly Ala Pro Gly
 305 310 315 320
 Gly Gly Ser Arg Pro Ser Gln His Tyr Gly Gly Ser Ser Asp Tyr Gln
 325 330 335
 Asn Arg Arg Gly Gly Asn Gly Asn Phe Gly Gly Ser His Phe Gly Gly
 340 345 350
 Gly Gly Gly Phe Ala Gly Ser His Phe Gly Ala Gly Tyr Pro Thr Ala
 355 360 365
 Pro Thr Met Pro Ser Ala Pro Pro Phe Pro Pro Ala Tyr Asp
 370 375 380
 Thr Ile Tyr Gly
 385

<210> 243
 <211> 390
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 243
 Ile Phe Leu Val Lys Phe Met Ser Ala Met Ile Ser Leu Ser Ser Ser
 1 5 10 15
 His Glu Ala Ser Ile Ala Ser Asn Thr Gln Val Arg Asp Val Leu Val
 20 25 30
 Ser Leu Ala Met Asp Glu Phe Val Glu His Asn Thr Glu Ile Leu Pro
 35 40 45
 Ile Lys Val Phe Leu Ala Arg Gly Thr Leu Ser Ser Thr Ala Ile Ile
 50 55 60
 Asp Asp Leu Lys Asp Val Val Glu Thr Glu Gly Glu His His Phe Gln
 65 70 75 80
 Val Tyr Ser Asn Ile Ser Leu Lys Met Ile Tyr Gln Arg Phe Phe Glu
 85 90 95
 Lys Ile Phe Gly Ile Gly Cys Cys Pro Leu Leu Leu Val Thr Asp Ser
 100 105 110
 His His Thr Asp Pro Cys Gly Ala Leu Ile Thr Gly Ile Phe Ala Ala
 115 120 125
 Val Leu Phe Thr Val Leu Ala Ile Val Phe Gly Pro Thr Leu Gly Ile
 130 135 140

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Cys | Tyr | Ser | Ala | Tyr | Lys | Ile | Tyr | Gln | Leu | Thr | Lys | Lys | Ile | Ser |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Leu | Ser | Arg | Thr | His | Thr | Glu | Val | Ile | Asn | Ser | Val | Gln | Lys | Ser |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Asp | Pro | Phe | Ile | His | Arg | Ser | Gly | Ala | Val | Ala | Ala | Ala | Ala | Ala | Ser |
| | | | 180 | | | | | 185 | | | | | | 190 | |
| Gln | Ser | Thr | Ile | Lys | Ala | Cys | Lys | Val | Phe | Arg | Gln | Ser | Thr | Leu | Ile |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Phe | Phe | Val | Leu | Gly | Leu | Ile | Ile | Thr | Ile | Ser | Leu | Ala | Ala | Leu | Ile |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Val | Gly | Leu | Val | Phe | Ala | Leu | Phe | Phe | Leu | Asp | Pro | Gly | Ala | Pro | Ala |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Val | Met | Thr | Ala | Ala | Met | Ile | Gly | Cys | Cys | Ala | Ala | Gly | Gly | Thr | Gly |
| | | | | 245 | | | | | 250 | | | | | | 255 |
| Ile | Leu | Leu | Ser | Val | Ile | Gly | Phe | Leu | Leu | Ala | Ser | Val | Tyr | Ser | Val |
| | | | 260 | | | | | 265 | | | | | | 270 | |
| Gln | Lys | Ser | Gln | Glu | Gly | Val | His | His | Met | His | Thr | Ala | Leu | Leu | Arg |
| | | 275 | | | | | 280 | | | | | | 285 | | |
| Cys | Ile | Val | Ser | Asn | Thr | Ile | Ile | Gln | Met | Pro | Tyr | Leu | Pro | Ile | Thr |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Pro | Gly | Thr | Lys | Lys | Val | Leu | Thr | Gln | Ser | Ile | Arg | Arg | Tyr | Gln | Gln |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Phe | Phe | Ser | Asp | Asp | Glu | Tyr | Arg | Asp | Ile | Glu | Ser | Glu | Val | Pro | Leu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Asn | Arg | Gln | Thr | Thr | Pro | Pro | Pro | Ser | Tyr | Glu | Thr | Leu | Phe | His | Glu |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Glu | Gly | Ser | Asp | Gly | Ser | Ser | Asn | Val | Ile | Pro | Arg | Glu | Ser | Pro | Pro |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ala | Tyr | Ser | Thr | Ile | Asp | Ser | Ser | Asn | Ser | Pro | Phe | Pro | Ser | Ser | Ser |
| | 370 | | | | | 375 | | | | | | 380 | | | |
| Pro | Pro | Pro | Tyr | Tyr | Arg | | | | | | | | | | |
| 385 | | | | | 390 | | | | | | | | | | |

<210> 244
 <211> 163
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 244 | | | | | | | | | | | | | | | |
| Lys | Ser | Leu | Lys | Tyr | Cys | Ser | Leu | Tyr | Gln | Phe | Ser | Gln | Lys | Pro | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Ile | Leu | Met | Ala | Cys | Ser | Ile | Phe | Phe | Arg | Met | Ser | Gln | Gly | Asp |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Tyr | Asp | Asp | Glu | Pro | Leu | Ser | Lys | Lys | Thr | Ala | Cys | Leu | Val | Val | Asp |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Thr | Met | Leu | Tyr | Pro | Val | Ile | Ala | Val | Val | Cys | Ala | Val | Val | Ser | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Val | Leu | Leu | Ile | Leu | Lys | Val | Leu | Phe | Leu | Leu | Leu | Ser | Phe | Pro | Phe |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Lys | Leu | Cys | Ser | Ala | Ser | Ser | Ala | Leu | Pro | Gly | Glu | Arg | Val | Ser | Leu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Gly | Ser | His | Phe | Lys | Cys | Leu | Tyr | Gly | Gly | Gly | Leu | Pro | Tyr | Leu | Leu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ala | Cys | Leu | Leu | Ile | Val | Pro | Val | Ile | Gly | Thr | Ala | Ile | His | Gly | Phe |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ile | Ile | Ser | His | Arg | Thr | Ser | Glu | Asp | Ala | Arg | Leu | Ser | Ser | Ala | Ile |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Val | Phe | Met | Gln | Ala | Pro | Ile | Leu | Gln | Leu | Ala | Gly | Met | Ser | Gly | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ile | Lys | Pro | | | | | | | | | | | | | |

<210> 245
 <211> 159
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 245
 Ile Asn Tyr Asn Tyr Leu Val Phe Leu Leu Lys Phe Val Lys Gly Arg
 1 5 10 15
 Ile Ile Met Ala Cys Ser Ile Gly Tyr His Leu Cys Asn Ala Asn Glu
 20 25 30
 Pro Asp Arg Phe Val Ala Ser Lys Val Ala Leu Val Ala Asp Ile Leu
 35 40 45
 Leu Tyr Pro Phe Met Ala Val Ile Cys Ala Val Val Phe Ala Val Leu
 50 55 60
 Met Val Val Lys Leu Leu Phe Leu Ala Ile Lys Phe Leu Val Asn Thr
 65 70 75 80
 Cys Ile Ala Ala Cys Lys Ser Arg Pro Leu Pro Ser Cys Lys Glu Asn
 85 90 95
 Phe Gln Cys Leu Phe Gly Pro Lys Asp Lys Pro Gly Pro Ser Asp Trp
 100 105 110
 Leu Gly Cys Leu Val Leu Ile Pro Ile Ile Gly Thr Leu Ile Tyr Ser
 115 120 125
 Thr Ile Ile Thr Val Gln Ser Asp Thr Asn Arg Leu Arg Tyr Phe Ile
 130 135 140
 Ile Ser Pro Ala Tyr Gln Val Gly Ser Thr Ala Ile Ile Asn Trp
 145 150 155

<210> 246
 <211> 217
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 246
 Gly Ala Phe Glu Val Thr Lys Gly Ser Val Phe Ile Ile Met Gly Pro
 1 5 10 15
 Pro Gly Ser Gly Lys Gly Thr Gln Ser Gln Tyr Leu Ala Asn Arg Ile
 20 25 30
 Gly Leu Pro His Ile Ser Thr Gly Asp Leu Leu Arg Ala Ile Ile Arg
 35 40 45
 Glu Gly Thr Pro Asn Gly Leu Lys Ala Lys Ala Tyr Leu Asp Lys Gly
 50 55 60
 Ala Phe Val Pro Ser Asp Phe Val Trp Glu Ile Leu Lys Glu Lys Leu
 65 70 75 80
 Gln Ser Gln Ala Cys Ser Lys Gly Cys Ile Ile Asp Gly Phe Pro Arg
 85 90 95
 Thr Leu Asp Gln Ala His Leu Leu Asp Ser Phe Leu Met Asp Val His
 100 105 110
 Ser Asn Tyr Thr Val Ile Phe Leu Glu Ile Ser Glu Asp Glu Ile Leu
 115 120 125
 Lys Arg Val Cys Ser Arg Phe Leu Cys Pro Ser Cys Ser Arg Ile Tyr
 130 135 140
 Asn Thr Ser Gln Gly His Thr Glu Cys Pro Asp Cys His Val Pro Leu
 145 150 155 160
 Ile Arg Arg Ser Asp Asp Thr Pro Glu Ile Ile Lys Glu Arg Leu Thr
 165 170 175
 Lys Tyr Gln Glu Arg Thr Ala Pro Val Ile Ala Tyr Tyr Asp Ser Leu
 180 185 190
 Gly Lys Leu Cys Arg Val Ser Ser Glu Asn Lys Glu Asp Leu Val Phe
 195 200 205
 Glu Asp Ile Leu Lys Cys Ile Tyr Lys
 210 215

<210> 247
 <211> 291
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 247
 Thr Cys Gln Lys Glu Ile Met Lys His Tyr Leu Ser Phe Ser Pro Ser
 1 5 10 15
 Ala Asp Phe Phe Ser Lys Gln Gly Ala Ile Glu Thr Gln Val Leu Phe
 20 25 30
 Gly Glu Arg Val Leu Val Lys Gly Ser Thr Cys Tyr Ala Tyr Ser Gln
 35 40 45
 Leu Phe His Asn Glu Leu Leu Trp Lys Pro Tyr Pro Gly His Ser Phe
 50 55 60
 Arg Ser Thr Leu Val Pro Cys Thr Pro Glu Phe His Ile His Pro Asn
 65 70 75 80
 Val Ser Val Val Ser Val Asp Ala Phe Leu Asp Pro Trp Gly Ile Pro
 85 90 95
 Leu Pro Phe Gly Thr Leu Leu His Val Asn Ser Gln Asn Thr Val Ile
 100 105 110
 Phe Pro Lys Asp Ile Leu Asn His Met Asn Thr Ile Trp Gly Ser Gly
 115 120 125
 Thr Pro Gln Cys Asp Pro Arg His Leu Arg Arg Leu Asn Tyr Asn Phe
 130 135 140
 Phe Ala Glu Leu Leu Ile Lys Asp Ala Asp Leu Leu Leu Asn Phe Pro
 145 150 155 160
 Tyr Val Trp Gly Gly Arg Ser Val His Glu Ser Leu Glu Lys Pro Gly
 165 170 175
 Val Asp Cys Ser Gly Phe Ile Asn Ile Leu Tyr Gln Ala Gln Gly Tyr
 180 185 190
 Asn Val Pro Arg Asn Ala Ala Asp Gln Tyr Ala Asp Cys His Trp Ile
 195 200 205
 Ser Ser Phe Glu Asn Leu Pro Ser Gly Gly Leu Ile Phe Leu Tyr Pro
 210 215 220
 Lys Glu Glu Lys Arg Ile Ser His Val Met Leu Lys Gln Asp Ser Ser
 225 230 235 240
 Thr Leu Ile His Ala Ser Gly Gly Gly Lys Lys Val Glu Tyr Phe Ile
 245 250 255
 Leu Glu Gln Asp Gly Lys Phe Leu Asp Ser Thr Tyr Leu Phe Phe Arg
 260 265 270
 Asn Asn Gln Arg Gly Arg Ala Phe Phe Gly Ile Pro Arg Lys Arg Lys
 275 280 285
 Ala Phe Leu
 290

<210> 248
 <211> 135
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 248
 Val Val Ala Lys Ser Thr Ile Gln Glu Ser Val Ala Thr Gly Arg Arg
 1 5 10 15
 Lys Gln Ala Val Ser Ser Val Arg Leu Arg Pro Gly Ser Gly Lys Ile
 20 25 30
 Asp Val Asn Gly Lys Ser Phe Glu Asp Tyr Phe Pro Leu Glu Ile Gln
 35 40 45
 Arg Thr Thr Ile Leu Ser Pro Leu Lys Lys Ile Thr Glu Asp Gln Ser
 50 55 60
 Gln Tyr Asp Leu Ile Ile Arg Val Ser Gly Gly Gly Ile Gln Gly Gln
 65 70 75 80

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ile | Ala | Thr | Arg | Leu | Gly | Leu | Ala | Arg | Ala | Leu | Leu | Lys | Glu | Asn |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Glu | Glu | Asn | Arg | Gln | Asp | Leu | Lys | Ser | Cys | Gly | Phe | Leu | Thr | Arg | Asp |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Pro | Arg | Lys | Lys | Glu | Arg | Lys | Lys | Tyr | Gly | His | Lys | Lys | Ala | Arg | Lys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ser | Phe | Gln | Phe | Ser | Lys | Arg | | | | | | | | | |
| | 130 | | | | | 135 | | | | | | | | | |

<210> 249
 <211> 154
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ser | Tyr | Ile | Ile | Met | Glu | Lys | Arg | Lys | Asp | Thr | Lys | Thr | Thr | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Lys | Ser | Ser | Glu | Thr | Thr | Lys | Ser | Trp | Tyr | Val | Val | Asp | Ala | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Gly | Lys | Thr | Leu | Gly | Arg | Leu | Ser | Ser | Glu | Val | Ala | Lys | Ile | Leu | Arg |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gly | Lys | His | Lys | Val | Thr | Tyr | Thr | Pro | His | Val | Ala | Met | Gly | Asp | Gly |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Val | Ile | Val | Ile | Asn | Ala | Glu | Lys | Val | Arg | Leu | Thr | Gly | Ala | Lys | Lys |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Gly | Gln | Lys | Ile | Tyr | Arg | Tyr | Tyr | Thr | Gly | Tyr | Ile | Ser | Gly | Met | Arg |
| | | | | 85 | | | | 90 | | | | | 95 | | |
| Glu | Ile | Pro | Phe | Glu | Asn | Met | Met | Ala | Arg | Lys | Pro | Asn | Tyr | Ile | Ile |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Glu | His | Ala | Ile | Lys | Gly | Met | Met | Pro | Arg | Thr | Arg | Leu | Gly | Lys | Lys |
| | | 115 | | | | 120 | | | | | | 125 | | | |
| Gln | Leu | Lys | Ser | Leu | Arg | Ile | Val | Lys | Gly | Asp | Ser | Tyr | Glu | Thr | Phe |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Glu | Ser | Gln | Lys | Pro | Ile | Leu | Leu | Asp | Ile | | | | | | |
| 145 | | | | | | 150 | | | | | | | | | |

<210> 250
 <211> 268
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Ser | Pro | Pro | Gly | Tyr | Leu | Glu | Ser | Arg | Val | Arg | Tyr | Ala | Thr | Phe |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Arg | Ser | Phe | Arg | Ser | Pro | Ala | Cys | Lys | Lys | Ser | Arg | Lys | Asn | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Cys | Leu | Arg | Asn | Phe | Lys | Ser | Arg | Leu | Ala | Met | Ser | Leu | Leu | Ile | Glu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ala | Lys | Asn | Leu | Ser | Lys | Thr | Ile | Gln | Gln | Gln | Asn | Gln | Asn | Ile | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Leu | Thr | Asp | Val | Ser | Leu | Ser | Leu | His | Ala | Gly | Glu | Thr | Ile | Ser |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Ile | Thr | Gly | Ala | Ser | Gly | Asn | Gly | Lys | Thr | Thr | Leu | Leu | His | Leu | Leu |
| | | | | 85 | | | | 90 | | | | | 95 | | |
| Gly | Thr | Leu | Asp | Val | Pro | Ser | Ser | Gly | Ser | Leu | Arg | Phe | Phe | Asp | Lys |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asp | Leu | Lys | Asn | Gln | Asp | Leu | Ala | Asn | Phe | Arg | Asn | Gln | His | Ile | Gly |
| | | 115 | | | | 120 | | | | | | 125 | | | |
| Phe | Val | Phe | Gln | Asn | Phe | Tyr | Leu | Leu | Glu | Asp | Asp | Thr | Val | Leu | Lys |
| | 130 | | | | | 135 | | | | | 140 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Val | Leu | Met | Pro | Ala | Leu | Ile | Ala | Arg | Lys | Asn | Ile | Ser | Lys | Gly |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Pro | Val | Tyr | Thr | Arg | Ala | Leu | Glu | Leu | Leu | Asp | Leu | Val | Asn | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Glu | Asp | Lys | Val | Arg | Thr | Arg | Cys | Ser | Lys | Leu | Ser | Gly | Gly | Glu | Lys |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Gln | Arg | Val | Ala | Ile | Ala | Arg | Ala | Leu | Ile | Asn | Glu | Pro | Ala | Ile | Leu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Leu | Ala | Asp | Glu | Pro | Ser | Gly | Asn | Leu | Asp | Glu | Glu | Thr | Ser | Glu | Gln |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ile | His | Asn | Leu | Leu | Leu | Glu | Gln | Ala | Ser | Ala | Leu | Cys | Gly | Ile | Leu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ile | Val | Thr | His | Asn | Lys | His | Leu | Ala | Ser | Arg | Cys | Ser | Arg | Glu | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Val | Leu | Ser | Asn | Gly | Lys | Leu | Phe | Phe | His | Asn | Ser | | | | |
| | | | 260 | | | | | 265 | | | | | | | |

<210> 251

<211> 506

<212> PRT

<213> Chlamydia pneumoniae

<400> 251

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Glu | Val | Met | Lys | Phe | Glu | Phe | Ser | Val | Ala | Leu | Lys | Tyr | Leu | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Pro | Gly | Arg | Gly | Arg | Leu | Tyr | Ser | Ala | Ile | Val | Ser | Leu | Phe | Ser | Val |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Gly | Ile | Ile | Ser | Leu | Val | Val | Trp | Leu | Ser | Ile | Val | Phe | Ile | Ser | Val |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ile | His | Gly | Leu | Glu | Gln | Arg | Trp | Ile | Glu | Asp | Leu | Ser | Gln | Leu | His |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Ser | Pro | Ile | Thr | Ile | Leu | Pro | Ser | Asp | Thr | Tyr | Tyr | Ser | Ser | Tyr | Tyr |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | |
| Tyr | Gln | Ile | Asp | Lys | His | Ser | Ser | Leu | Ser | Asn | Tyr | Thr | Thr | Lys | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Leu | Gly | Glu | Lys | Ile | Ala | Ser | Pro | Gln | Val | Asp | Pro | Tyr | Asp | Pro | Glu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Asp | Tyr | Leu | Leu | Pro | Glu | Thr | Phe | Pro | Leu | Lys | Asp | Cys | Asp | Leu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Gly | Gln | Gln | Lys | Asp | Pro | Val | Lys | Met | Thr | Leu | Glu | Ser | Leu | Gly |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Pro | Tyr | Leu | Gln | Ser | Gln | His | Gly | Lys | Val | Ile | Glu | Phe | Glu | Gln | Gly |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Val | Gly | Tyr | Leu | Asp | Ile | Lys | Thr | Ser | Leu | Lys | Leu | Gln | Lys | Pro | Gln |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Pro | Arg | Asn | Leu | Thr | His | Phe | Leu | Thr | Tyr | Pro | Ser | Lys | Leu | Ser | Tyr |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Glu | Asp | Lys | Val | Leu | Pro | Tyr | Asp | Glu | Thr | Asp | Tyr | Thr | Ser | Ala | Glu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Leu | Asn | Pro | Phe | Asn | Arg | Ser | Pro | Ser | Gly | Trp | Gln | Gln | Asp | Phe | His |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| His | Leu | Glu | Glu | Leu | Tyr | Arg | Gly | Ala | Ser | Ile | Ile | Leu | Pro | Ser | Thr |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Tyr | Lys | Asp | Ser | Gly | Tyr | Lys | Val | Gly | Asp | Thr | Gly | Val | Phe | Ser | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Tyr | Ser | Ile | Glu | Asn | Glu | Lys | Glu | Thr | Gln | Tyr | Thr | Val | His | Val | Ile |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Gly | Phe | Tyr | Asn | Pro | Gly | Leu | Ser | Pro | Leu | Gly | Gly | Arg | Thr | Val | Phe |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ile | Asp | Pro | Asp | Leu | Ala | Arg | Ser | Ile | Arg | Ser | Gln | Ser | Glu | Gly | Leu |
| | 290 | | | | | 295 | | | | | 300 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Met | Ser | Asn | Gly | Phe | His | Leu | Phe | Phe | Pro | Asn | Thr | Lys | Arg | Ile |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Val | Phe | Val | Lys | Lys | Gln | Ile | Glu | Asn | Ile | Leu | Thr | Ser | Leu | Gly | Val |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Asp | Asp | Tyr | Trp | Glu | Ile | Ser | Ser | Leu | His | Asp | Tyr | Asp | Tyr | Phe | Gln |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Pro | Ile | Leu | Asp | Gln | Leu | Gln | Ser | Asp | Gln | Val | Leu | Phe | Leu | Phe | Val |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Cys | Ile | Leu | Ile | Leu | Ile | Val | Ala | Cys | Ser | Asn | Ile | Val | Thr | Met | Ser |
| 370 | | | | | | 375 | | | | | 380 | | | | |
| Met | Leu | Leu | Val | Asn | Asn | Lys | Lys | Lys | Glu | Ile | Gly | Ile | Leu | Lys | Ala |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Met | Gly | Thr | Ser | Ser | Arg | Ser | Leu | Lys | Ile | Ile | Phe | Ala | Cys | Cys | Gly |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ala | Phe | Ser | Gly | Ala | Cys | Gly | Val | Val | Ile | Gly | Thr | Ile | Phe | Ala | Ile |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ile | Thr | Leu | Lys | Asn | Leu | Gln | Phe | Ile | Val | Lys | Ala | Leu | Asn | Tyr | Leu |
| | | 435 | | | | | 440 | | | | | | 445 | | |
| Gln | Gly | Arg | Glu | Thr | Phe | Asn | Thr | Ala | Phe | Phe | Gly | Gln | Asn | Leu | Pro |
| 450 | | | | | | 455 | | | | | 460 | | | | |
| Asn | Ser | Val | His | Pro | Gln | Ala | Ile | Tyr | Phe | Leu | Gly | Leu | Gly | Thr | Leu |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Leu | Leu | Ala | Ala | Val | Ser | Gly | Ala | Leu | Pro | Ala | Arg | Lys | Val | Ala | Lys |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Met | His | Val | Ser | Glu | Ile | Leu | Lys | Ala | Asp | | | | | | |
| | | | 500 | | | | | 505 | | | | | | | |

<210> 252
 <211> 56
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 252
 Lys Asp Ser Ser Met Ala Ser Lys Asn Arg Glu Ile Ile Lys Leu Lys
 1 5 10 15
 Ser Ser Glu Ser Ser Asp Met Tyr Trp Thr Val Lys Asn Lys Arg Lys
 20 25 30
 Thr Thr Gly Arg Leu Glu Leu Lys Lys Tyr Asp Arg Lys Leu Arg Arg
 35 40 45
 His Val Ile Phe Lys Glu Ala Arg
 50 55

<210> 253
 <211> 508
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 253
 Ser Pro Asp Ser Cys Leu Pro Trp Met Ser Pro Phe Lys Lys Ile Val
 1 5 10 15
 Asn Arg Leu Leu Cys Tyr Ile Ser Phe Gln Lys Glu Ser Arg Thr Leu
 20 25 30
 Pro Ile Ile Ile Arg Glu Pro Arg Met Thr Thr Lys Ser Leu Gly Ser
 35 40 45
 Phe Asn Ser Val Ile Ser Lys Asn Lys Ile His Phe Ile Ser Leu Gly
 50 55 60
 Cys Ser Arg Asn Leu Val Asp Ser Glu Val Met Leu Gly Ile Leu Leu
 65 70 75 80
 Lys Ala Gly Tyr Glu Ser Thr Asn Glu Ile Glu Asp Ala Asp Tyr Leu
 85 90 95

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ile | Leu | Asn | Thr | Cys | Ala | Phe | Leu | Lys | Ser | Ala | Arg | Asp | Glu | Ala | Lys | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Asp | Tyr | Leu | Asp | His | Leu | Ile | Asp | Val | Lys | Lys | Glu | Asn | Ala | Lys | Ile | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Ile | Val | Thr | Gly | Cys | Met | Thr | Ser | Asn | His | Lys | Asp | Glu | Leu | Lys | Pro | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Trp | Met | Ser | His | Ile | His | Tyr | Leu | Leu | Gly | Ser | Gly | Asp | Val | Glu | Asn | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Ile | Leu | Ser | Ala | Ile | Glu | Ser | Arg | Glu | Ser | Gly | Glu | Lys | Ile | Ser | Ala | |
| | | | 165 | | | | | | 170 | | | | | 175 | | |
| Lys | Ser | Tyr | Ile | Glu | Met | Gly | Glu | Val | Pro | Arg | Gln | Leu | Ser | Thr | Pro | |
| | | 180 | | | | | | 185 | | | | 190 | | | | |
| Lys | His | Tyr | Ala | Tyr | Leu | Lys | Val | Ala | Glu | Gly | Cys | Arg | Lys | Arg | Cys | |
| | 195 | | | | | | 200 | | | | | 205 | | | | |
| Ala | Phe | Cys | Ile | Ile | Pro | Ser | Ile | Lys | Gly | Lys | Leu | Arg | Ser | Lys | Pro | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Leu | Asp | Gln | Ile | Leu | Lys | Glu | Phe | Arg | Ile | Leu | Val | Asn | Lys | Ser | Val | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Lys | Glu | Ile | Ile | Leu | Ile | Ala | Gln | Asp | Leu | Gly | Asp | Tyr | Gly | Lys | Asp | |
| | | | 245 | | | | | | 250 | | | | | 255 | | |
| Leu | Ser | Thr | Asp | Arg | Ser | Ser | Gln | Leu | Glu | Ser | Leu | Leu | His | Glu | Leu | |
| | | 260 | | | | | | 265 | | | | | 270 | | | |
| Leu | Lys | Glu | Pro | Gly | Asp | Tyr | Trp | Leu | Arg | Met | Leu | Tyr | Leu | Tyr | Pro | |
| | 275 | | | | | | 280 | | | | | 285 | | | | |
| Asp | Glu | Val | Ser | Asp | Gly | Ile | Ile | Asp | Leu | Met | Gln | Ser | Asn | Pro | Lys | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Leu | Leu | Pro | Tyr | Val | Asp | Ile | Pro | Leu | Gln | His | Ile | Asn | Asp | Arg | Ile | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Leu | Lys | Gln | Met | Arg | Arg | Thr | Thr | Ser | Arg | Glu | Gln | Ile | Leu | Gly | Phe | |
| | | | 325 | | | | | | 330 | | | | | 335 | | |
| Leu | Glu | Lys | Leu | Arg | Ala | Lys | Val | Pro | Gln | Val | Tyr | Ile | Arg | Ser | Ser | |
| | | 340 | | | | | | 345 | | | | | 350 | | | |
| Val | Ile | Val | Gly | Phe | Pro | Gly | Glu | Thr | Gln | Glu | Glu | Phe | Gln | Glu | Leu | |
| | 355 | | | | | | 360 | | | | | 365 | | | | |
| Ala | Asp | Phe | Ile | Gly | Glu | Gly | Trp | Ile | Asp | Asn | Leu | Gly | Ile | Phe | Leu | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Tyr | Ser | Gln | Glu | Ala | Asn | Thr | Pro | Ala | Ala | Glu | Leu | Pro | Asp | Gln | Ile | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| Pro | Glu | Lys | Val | Lys | Glu | Ser | Arg | Leu | Lys | Ile | Leu | Ser | Gln | Ile | Gln | |
| | | | 405 | | | | | | 410 | | | | | 415 | | |
| Lys | Arg | Asn | Val | Asp | Lys | His | Asn | Gln | Lys | Leu | Ile | Gly | Glu | Lys | Ile | |
| | | 420 | | | | | | 425 | | | | | 430 | | | |
| Glu | Ala | Val | Ile | Asp | Asn | Tyr | His | Pro | Glu | Thr | Asn | Leu | Leu | Leu | Thr | |
| | 435 | | | | | | 440 | | | | | 445 | | | | |
| Ala | Arg | Phe | Tyr | Gly | Gln | Ala | Pro | Glu | Val | Asp | Pro | Cys | Ile | Ile | Val | |
| | 450 | | | | | 455 | | | | | 460 | | | | | |
| Asn | Glu | Ala | Lys | Leu | Val | Ser | His | Phe | Gly | Glu | Arg | Cys | Phe | Ile | Glu | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | |
| Ile | Thr | Gly | Thr | Ala | Gly | Tyr | Asp | Leu | Val | Gly | Arg | Val | Val | Lys | Lys | |
| | | | 485 | | | | | | 490 | | | | | 495 | | |
| Ser | Gln | Asn | Gln | Ala | Leu | Leu | Lys | Thr | Ser | Lys | Ala | | | | | |
| | | | 500 | | | | | 505 | | | | | | | | |

<210> 254

<211> 179

<212> PRT

<213> Chlamydia pneumoniae

<400> 254

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ala | Thr | Ser | Thr | Val | Cys | Ala | Leu | Trp | Ile | Leu | Gln | Thr | Tyr | Gln | Ser | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Asp | Asp | Ala | Ala | Ser | Cys | Ser | Phe | Arg | Arg | Ala | Cys | Arg | Phe | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Arg | Tyr | Trp | Leu | Gly | Gly | Val | Asn | Val | Pro | Trp | Asn | Lys | Phe | Asn | Gln |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Thr | Ser | Thr | Gln | Ser | Thr | Val | Ile | Asn | Ser | Ala | Ile | Tyr | Ile | Asp | Ser |
| | | 50 | | | | 55 | | | | | 60 | | | | |
| Ser | Gln | Thr | Trp | Met | Met | Arg | Phe | Gln | Ala | Ser | Ala | Ser | Ile | Pro | Arg |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Leu | Phe | Arg | Ile | Ser | Ile | Phe | Met | Thr | Lys | His | Gly | Asp | Trp | Ile | Asp |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Asn | Gly | Thr | Gly | Gly | Glu | Leu | Leu | Leu | Val | Ala | Tyr | Glu | Ala | Asn | Gln |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asn | Pro | Leu | Phe | Pro | Asp | Ile | Arg | Ile | Glu | Leu | Ala | Met | Ser | Thr | Cys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ser | Gly | Thr | Ser | Tyr | Tyr | Arg | Ala | Arg | Pro | Met | Gln | Trp | Leu | Cys | Ser |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Thr | Tyr | Tyr | Ala | Val | Arg | Pro | Gly | Tyr | Phe | Val | Leu | Glu | Asn | Arg | Ser |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | |
| Tyr | Ser | Phe | Arg | Val | Gln | Ser | Phe | Ser | Trp | Asn | Ile | Ala | Thr | Leu | Pro |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Phe | Val | Asn | | | | | | | | | | | | | |

<210> 255
 <211> 175
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Phe | Cys | Gly | Gly | Arg | Leu | Met | Ser | Ser | Ser | Ile | Pro | Thr | Thr | Gln | Lys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Thr | Ile | Ser | Ile | Pro | Thr | Phe | Val | Arg | Phe | Asn | Ile | Glu | Ser | Ile |
| | | | 20 | | | | | 25 | | | | 30 | | | |
| Asn | Leu | Thr | Asp | Glu | Gln | Lys | Lys | Thr | Ala | Leu | Thr | Ile | Gly | Gln | Asn |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ile | Ala | Thr | Glu | Asn | Thr | Gln | Val | Leu | Gly | Asn | Phe | Val | Asp | Ala | Asp |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Gly | Gly | Leu | Ile | Cys | Gln | Asn | Asp | Leu | Ser | Val | Gly | Gly | Asn | Ile | Asn |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Ile | Thr | Pro | Gln | Thr | Phe | Asn | Thr | Met | Val | Phe | Ser | Gly | Arg | Val | Asn |
| | | | | 85 | | | | 90 | | | | | 95 | | |
| Leu | Ser | Asn | Ser | Pro | Phe | Ser | Tyr | Gln | Asp | Ser | Leu | Gly | Asn | Lys | Arg |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Gln | Asp | Tyr | Ala | Asn | Ile | Asn | Thr | Glu | Gln | Pro | Gln | Gln | Tyr | Val | Pro |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Tyr | Gly | Tyr | Tyr | Lys | Leu | Thr | Arg | Val | Met | Met | Met | Gln | Arg | Ala | Ala |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Leu | Ser | Gly | Gly | His | Val | Gly | Ser | Gly | Asp | Ile | Gly | Trp | Gly | Glu | Ser |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | |
| Met | Tyr | Leu | Gly | Ile | Ser | Ser | Ile | Lys | Arg | Gln | His | Lys | Val | Gln | |
| | | | | 165 | | | | | 170 | | | | | 175 | |

<210> 256
 <211> 270
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Ile | Pro | Met | Lys | Thr | Leu | Gly | Val | Lys | Asp | Gln | Asn | Leu | Phe | Ile | Asp |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Ala | Thr | Leu | Ser | Val | Glu | Arg | Asn | Val | Arg | Ile | Glu | Asn | Asn | Leu | 20 | 25 | 30 |
| Glu | Thr | Arg | Asp | Leu | Lys | Val | Leu | Asp | Thr | Thr | Thr | Ser | Pro | Cys | Glu | 35 | 40 | 45 |
| Phe | Ile | Val | Lys | Gly | Asn | Val | Ser | Ala | Glu | Gly | Ser | Gln | Leu | Asn | Ala | 50 | 55 | 60 |
| Thr | Thr | Leu | Ser | Asp | Gly | Phe | Asn | Ile | Tyr | Ser | Lys | Thr | Asp | Val | Ser | 65 | 70 | 75 |
| Gln | Thr | Pro | Val | Cys | Asn | Asn | Ile | Ser | Asp | Pro | Gln | Ser | Ala | Arg | Asp | 85 | 90 | 95 |
| Ala | Leu | Thr | Phe | Ser | Tyr | Tyr | Arg | Lys | Thr | Gly | Cys | Gln | Ala | Ala | Asn | 100 | 105 | 110 |
| Leu | Tyr | Thr | Tyr | Tyr | Pro | Gly | Asn | Gly | Tyr | Tyr | Val | Ala | Pro | Asn | Thr | 115 | 120 | 125 |
| Thr | Ile | Glu | Thr | His | Val | Ala | Ala | Ile | Thr | Ser | Lys | Ser | Val | Ser | Arg | 130 | 135 | 140 |
| Asn | Ala | Thr | Pro | Asp | Phe | Ser | Arg | Tyr | Ala | Asp | Ile | Glu | Pro | Val | Val | 145 | 150 | 155 |
| Lys | Leu | Lys | Gln | Val | Gly | Ile | Tyr | Gln | Val | Thr | Met | Gln | Leu | Thr | Arg | 165 | 170 | 175 |
| Trp | Ser | Gly | Gln | His | Asp | Gly | Asp | Asn | Ser | Ala | Thr | Leu | Ile | Leu | Asn | 180 | 185 | 190 |
| Phe | Val | Ser | Gly | Asn | Asn | Lys | Thr | Leu | Leu | Cys | Thr | Ser | Asp | Thr | Arg | 195 | 200 | 205 |
| Gly | Gly | Tyr | Ser | Ser | Asp | Arg | Thr | Ser | Val | Ala | Val | Thr | Ala | Ile | Phe | 210 | 215 | 220 |
| Ser | Val | Thr | Glu | Leu | Val | Ser | Ser | Pro | Pro | Tyr | Asp | Tyr | Pro | Trp | Ile | 225 | 230 | 235 |
| Asn | Leu | Glu | Ser | Thr | Ile | Trp | Met | Asn | Leu | Met | Ser | Leu | Ser | Thr | Cys | 245 | 250 | 255 |
| Val | Ile | Trp | Phe | Pro | Phe | Pro | Ser | Asn | Phe | Val | Glu | Val | Asp | | | 260 | 265 | 270 |

<210> 257

<211> 285

<212> PRT

<213> Chlamydia pneumoniae

<400> 257

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Leu | Leu | Lys | Val | Ile | Met | Lys | Asn | Asn | Ile | Asn | Asn | Asn | Glu | Cys | 1 | 5 | 10 | 15 |
| Tyr | Phe | Lys | Leu | Asp | Ser | Thr | Val | Asp | Gly | Asp | Leu | Leu | Ala | Ala | Asn | 20 | 25 | 30 | |
| Leu | Lys | Thr | Phe | Asp | Thr | Gln | Ala | Gln | Gly | Ile | Ser | Ser | Thr | Glu | Thr | 35 | 40 | 45 | |
| Phe | Ser | Val | Gln | Gly | Asn | Ala | Thr | Phe | Lys | Asp | Gln | Val | Ser | Ala | Thr | 50 | 55 | 60 | |
| Gly | Leu | Thr | Ser | Gly | Thr | Thr | Tyr | Asn | Leu | Asn | Ala | Gln | Asn | Phe | Thr | 65 | 70 | 75 | 80 |
| Ser | Ser | Gln | Ile | Ser | Ile | Asp | Phe | Lys | Asn | Asn | Arg | Leu | Ser | Asn | Cys | 85 | 90 | 95 | |
| Ala | Leu | Pro | Lys | Glu | Asp | Cys | Asp | Pro | Val | Pro | Ala | Asn | Tyr | Val | Arg | 100 | 105 | 110 | |
| Ser | Pro | Glu | Tyr | Phe | Phe | Cys | Ser | Lys | Pro | Leu | Ile | Gly | Asp | Phe | Asp | 115 | 120 | 125 | |
| Phe | Asn | Ser | Gly | Glu | Ser | Tyr | Leu | Pro | Leu | Thr | Gly | Ser | Glu | Tyr | Thr | 130 | 135 | 140 | |
| Leu | Tyr | Gln | Ser | Arg | Asn | Val | Asn | Ser | Ile | Phe | Arg | Phe | Ile | Gly | Trp | 145 | 150 | 155 | 160 |
| Lys | Gln | Ser | Thr | Arg | Glu | Leu | Thr | Val | Gly | Gly | Asn | Thr | Ala | Ile | Gln | 165 | 170 | 175 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Leu | Ala | Ala | Gly | Thr | Tyr | Ile | Val | Ser | Phe | Thr | Val | Gly | Lys | Arg |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Trp | Gly | Trp | Asn | Asn | Gly | Trp | Gly | Gly | Ala | Ile | Tyr | Ile | Asn | Asn | Gly |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Leu | Gly | Gln | Val | Gln | Cys | Glu | Ser | Thr | Ile | Tyr | Ser | Gly | Gly | Gly | Tyr |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ala | Thr | Ile | Gly | Thr | Leu | Gly | Thr | Ser | Ile | Tyr | Arg | Ala | Ser | Val | Asp |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Val | Ala | Pro | Asn | Pro | Asn | Asp | Pro | Asn | Ala | Ser | Asp | Arg | Tyr | Arg | Ala |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Gly | Ile | Phe | Tyr | Leu | Ser | Asn | Gly | Gly | Ser | Ser | Ala | Gly | Ile | Gly | Asn |
| | | 260 | | | | | 265 | | | | | | 270 | | |
| Tyr | Ser | Phe | Ser | Leu | Leu | Tyr | Tyr | Pro | Asp | Asp | Arg | Gly | | | |
| | | 275 | | | | | 280 | | | | | 285 | | | |

<210> 258

<211> 295

<212> PRT

<213> Chlamydia pneumoniae

<400> 258

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Cys | Gly | Gly | Arg | Leu | Met | Ser | Asn | Pro | Thr | Pro | Lys | Thr | Lys | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Ile | Pro | Thr | Phe | Val | Arg | Phe | Asn | Ile | Gln | Ser | Ile | Asn | Leu | Thr |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Asp | Gln | Lys | Lys | Thr | Thr | Phe | Thr | Val | Gly | Gly | Lys | Val | Thr | Thr |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Glu | Asn | Thr | Val | Val | Arg | Gly | Asp | Leu | Thr | Cys | Thr | Asp | Gly | Gly | Leu |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Thr | Cys | Gln | Ser | Asp | Leu | Thr | Ile | Gln | Lys | Asp | Ile | Asn | Ile | Arg | Pro |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 |
| Thr | Ser | Thr | Asn | Ser | Met | Val | Phe | Asp | Gly | Arg | Leu | Asn | Leu | Ser | Asn |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Ser | Pro | Leu | Ser | Tyr | Lys | Asn | Ser | Gln | Gly | Gln | Asp | Ile | Thr | Asp | Tyr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Glu | Lys | Met | Ser | Ser | Gly | Lys | Pro | Gln | Glu | Tyr | Val | Pro | Phe | Gly | Tyr |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Tyr | Lys | Arg | Thr | Gln | Ile | Met | Met | Ala | Gln | Arg | Ala | Ala | His | Ser | Ser |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gly | Tyr | Val | Gly | Gly | Gly | Ser | Val | Pro | Ser | Gly | Ser | Tyr | Val | Pro | Trp |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asn | Lys | Phe | Asp | Gln | Thr | Ser | Thr | Gln | Lys | Thr | Ser | Gly | Thr | Glu | Ile |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Tyr | Ile | Asp | Pro | Asn | Asp | Ser | Thr | Lys | Leu | Val | Phe | Glu | Val | Asn | Asn |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Lys | Val | Pro | Lys | Leu | Phe | Arg | Ile | Ser | Val | Ile | Met | Ala | Lys | His | Gly |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Ser | Trp | Leu | Asp | Asn | Gly | Thr | Gly | Ala | Asp | Ile | Leu | Leu | Ala | Ala | Asn |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Glu | Tyr | Glu | Gln | Gly | Gly | Gly | Arg | Ile | Asn | Val | Thr | Asp | Leu | Ala | Met |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Thr | Thr | Ser | Arg | Gly | Ser | Ser | Tyr | Tyr | Glu | Thr | Arg | Pro | Leu | Gln | Val |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Val | Cys | Val | Thr | Tyr | Tyr | Ala | Gln | Asn | Asn | Gly | Tyr | Phe | Thr | Phe | Gln |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Asn | Arg | Ala | Gly | Gly | Gly | Leu | Arg | Val | Ser | Phe | Phe | Ser | Trp | Asn | Ile |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Val | Ala | Leu | Pro | Tyr | Val | Glu | | | | | | | | | |
| | 290 | | | | | 295 | | | | | | | | | |

<210> 259
 <211> 290
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 259
 Gly Val Val Met Lys Arg Arg Asn Leu Gln Lys Ile Leu Pro Asn Ala
 1 5 10 15
 Ser Thr Pro Ser Thr Asn Val Ala Glu Asn Thr Gly Ile Lys Asp Gln
 20 25 30
 Asn Leu Phe Leu Asp Gln Ala Thr Leu Asn Val Asp Gly Asn Val Asp
 35 40 45
 Ile Glu Asn Phe Leu Glu Thr Arg Asp Leu Lys Val Ala Asp Thr Ile
 50 55 60
 Thr Ser Pro Cys Glu Phe Thr Val Gly Gly Gly Leu Ser Ala Glu Ser
 65 70 75 80
 Ser Gln Phe Lys Ala Thr Thr Leu Ser Lys Gly Leu Glu Ile Thr Ser
 85 90 95
 Glu Asp Gln Asp Gly Arg Val Pro Lys Phe Thr Asn Val Ser Asp Pro
 100 105 110
 Gln Ser Pro Arg Asp Ala Leu Thr Tyr Asn Tyr Tyr Arg Asn Thr Gly
 115 120 125
 Cys Gln Ala Leu Asn Leu Tyr Thr Tyr Tyr Ser Ser Ser Gln Pro Thr
 130 135 140
 Thr Val Gly Lys Pro Ile Glu Thr Val Cys Gln Asn Pro Asn Pro Glu
 145 150 155 160
 Thr Tyr Arg Ile Ser Ala Ser Ala Lys Ile Tyr Asp Ala Val Thr Arg
 165 170 175
 Phe Pro Tyr Ile Gln Phe Lys Ala Pro Gly Ile Tyr Gln Val Thr Ile
 180 185 190
 Gln Ile Arg Arg Glu Ser Gly Gln His Ser Gly Leu Asp Asn Pro Asn
 195 200 205
 Leu Tyr Leu Asn Leu Met Ile Gly Asn Asn Lys Thr Leu Leu Cys Ala
 210 215 220
 Ser Asp Thr Arg Gly Tyr Ser Gly Gly His Arg Thr Ser Ile Ala Val
 225 230 235 240
 Thr Gly Thr Phe Thr Leu Thr Glu Ile Val Ala Thr Pro Pro His Asp
 245 250 255
 Tyr Pro Trp Leu Phe Leu Glu Thr Thr Ile Gly Leu Asp Ile Lys Ser
 260 265 270
 Met Ser Thr Cys Val Ile Trp Phe Pro Phe Gln Ala Asn Phe Ala Glu
 275 280 285
 Val Asp
 290

<210> 260
 <211> 134
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 260
 Cys Phe Ser Phe Cys Arg Leu Gly Ser Lys Phe Glu Lys Ile Thr Leu
 1 5 10 15
 Gly Gly Asn Thr Ala Ile Gln Leu Leu Ala Ala Gly Thr Tyr Ile Leu
 20 25 30
 Thr Phe Thr Ile Gly Lys Arg Trp Gly Trp Asn Asn Gly Trp Gly Gly
 35 40 45
 Ser Ile Arg Leu Phe Glu Gly Lys Tyr Thr Gly Asp Gly Thr Met Leu
 50 55 60
 Cys Gly Ser Thr Val Tyr Ser Gly Gly Gly Tyr Ser Thr Ile Gly Tyr
 65 70 75 80

Leu Ser Thr Ala Val Tyr Arg Asp His Ser Asp Ile Asp Pro Asp Pro
 85 90 95
 Asn Asn Pro Ser Asp Lys Tyr Met Asn Asn Phe Leu Phe Val Arg Asn
 100 105 110
 Gly Asp His Ser Ala Val Ile Gly Asn Tyr Ser Phe Thr Leu Leu Tyr
 115 120 125
 Phe Ala Gly Asp Lys Val
 130

<210> 261
 <211> 197
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 261
 Ile Tyr Phe Val Phe Lys Arg Lys Thr Tyr Asn Tyr Phe Ile Glu Met
 1 5 10 15
 Thr Thr Thr Asn Asn Gln Asp Asn Asn Glu Cys Tyr Phe Lys Leu Asp
 20 25 30
 Ser Thr Val Asp Gly Asp Leu Leu Ala Ser Asn Ile Gln Thr Phe Asp
 35 40 45
 Lys Gln Ala Lys Gly Ile Ser Ser Thr Glu Thr Phe Ser Val Gln Gly
 50 55 60
 Asn Ala Thr Phe Lys Glu Lys Val Ser Ala Thr Gly Leu Thr Ser Ala
 65 70 75 80
 Ser Thr Tyr Lys Leu Asn Ala Thr Gly Pro Ala Pro Ser Ser Ile Thr
 85 90 95
 Ile Asp Met Lys Asn Asn Arg Leu Ser Asn Pro Ala Leu Pro Lys Asn
 100 105 110
 Pro Cys Asp Pro Val Pro Ala Asn Tyr Val Arg Ser Pro Gln Tyr Phe
 115 120 125
 Phe Cys Ala Lys Pro Ile Glu Gly Thr Phe Met Phe Asp Gly Ser Ser
 130 135 140
 Arg Tyr Leu Pro Ile Thr Gly Asp Gly Ser Asn Tyr Thr Leu Tyr Gln
 145 150 155 160
 Ser Ser Lys Ala Gly Asp Val Phe Arg Phe Val Asp Trp Asp Gln Asn
 165 170 175
 Ser Lys Lys Leu His Leu Gly Gly Thr Gln Pro Tyr Asn Phe Leu Leu
 180 185 190
 Gln Glu Pro Ile Ser
 195

<210> 262
 <211> 181
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 262
 Ala Tyr Leu Asp Phe Ser Lys Arg Ser Cys Val Glu Glu Asp His Val
 1 5 10 15
 Ser Lys Lys Ile Asn Arg Asn Asp Leu Cys Pro Cys Gly Ser Asn Lys
 20 25 30
 Lys Tyr Lys Gln Cys Cys Leu Lys Glu Glu Gln Thr Ala Arg Tyr
 35 40 45
 Thr Thr Glu Gly Lys Phe Lys Phe Ser Ala Glu Val Leu Ser Ala Ser
 50 55 60
 Glu Gln Gly Glu Ala Gly Asp Asn Cys Thr Lys Leu Phe Gln Arg Leu
 65 70 75 80
 Ser Gln Ser Leu Thr Ser Glu Gln Lys Ala Ala Val Gly Lys Phe His
 85 90 95

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Gln | Ile | Thr | Lys | Asn | Lys | Glu | Val | Met | Ser | Lys | Lys | Ala | Leu | Lys | Lys | | |
| | | | 100 | | | | | 105 | | | | | 110 | | | | |
| Ala | Gln | Ala | Lys | Glu | Glu | Lys | Leu | Val | Thr | Glu | Lys | Leu | Gln | Gln | His | | |
| | | | 115 | | | | 120 | | | | | 125 | | | | | |
| Asn | Phe | Glu | Ile | Leu | Asn | Thr | Gly | Glu | Asn | Leu | Ala | Pro | Pro | Met | Glu | | |
| | | | 130 | | | 135 | | | | | 140 | | | | | | |
| Ser | Thr | Ala | Thr | Leu | Asn | Gln | Asp | Thr | Asn | Phe | Val | Cys | Glu | Asp | Phe | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |
| Ile | Pro | Thr | Gln | Glu | Asp | Phe | Arg | Ile | Ser | Glu | Asn | Ser | Gln | Lys | Pro | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | |
| Pro | Val | Glu | Glu | Asp | | | | | | | | | | | | | |
| | | | 180 | | | | | | | | | | | | | | |

<210> 263

<211> 254

<212> PRT

<213> Chlamydia pneumoniae

<400> 263

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Tyr | Ser | Phe | Asn | His | Pro | Phe | Ile | Val | Phe | Met | Ser | Thr | Leu | Leu | Leu | | |
| 1 | | | | 5 | | | | | 10 | | | | 15 | | | | |
| Asn | Pro | Pro | Trp | Met | Lys | Ala | Gly | Lys | Arg | Ile | Glu | Ser | Leu | Val | Arg | | |
| | | | 20 | | | | | 25 | | | | | 30 | | | | |
| Lys | Ala | Leu | Tyr | Thr | His | Thr | Met | Leu | Ala | Asn | His | Arg | Lys | Ile | Val | | |
| | | | 35 | | | | 40 | | | | | 45 | | | | | |
| Val | Ala | Leu | Ser | Gly | Gly | Lys | Asp | Ser | Leu | Thr | Leu | Leu | Leu | Met | Leu | | |
| | | | 50 | | | 55 | | | | | 60 | | | | | | |
| Lys | Ala | Ile | Ser | Gly | Arg | Gly | Phe | Pro | Asp | Leu | Asp | Leu | His | Ala | Val | | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | | |
| Asn | Ile | Gly | Gly | Lys | Tyr | Ser | Cys | Gly | Ala | Glu | Val | Asn | Lys | Pro | Tyr | | |
| | | | | 85 | | | | | 90 | | | | | 95 | | | |
| Leu | Thr | Arg | Ile | Cys | Asp | Gln | Leu | Cys | Ile | Pro | Phe | Arg | Thr | Ile | Pro | | |
| | | | 100 | | | | | 105 | | | | | 110 | | | | |
| Ser | Pro | Tyr | Ala | Pro | Glu | Thr | Pro | Glu | Cys | Tyr | Pro | Cys | Ser | Gln | Ala | | |
| | | | 115 | | | | 120 | | | | | 125 | | | | | |
| Arg | Arg | Arg | Leu | Leu | Phe | Gln | Ala | Ala | Lys | Glu | Ile | Gly | Ala | Ser | Ala | | |
| | | | 130 | | | 135 | | | | | | 140 | | | | | |
| Ile | Ala | Phe | Gly | His | His | Arg | Asp | Asp | Leu | Val | Gln | Thr | Ala | Leu | Leu | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |
| Asn | Leu | Leu | His | Lys | Ala | Glu | Phe | Ala | Gly | Met | Leu | Pro | Val | Leu | Asp | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | |
| Met | Val | His | Phe | Gly | Val | Thr | Ile | Leu | Arg | Pro | Leu | Ile | Phe | Thr | Pro | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| Glu | Phe | Trp | Ile | Arg | Lys | Phe | Ala | Lys | Glu | Asn | Gly | Phe | Ala | Arg | Val | | |
| | | | 195 | | | 200 | | | | | | 205 | | | | | |
| Thr | Cys | Arg | Cys | Pro | Val | Val | Ser | Leu | Arg | Ser | Lys | Ala | Glu | Gln | Ser | | |
| | | | 210 | | | 215 | | | | | 220 | | | | | | |
| Leu | Lys | Leu | Leu | Glu | Glu | Val | Phe | Pro | Leu | Ala | Arg | His | Asn | Ile | Ala | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| Leu | Ala | Ile | Gln | Glu | His | Gly | Ser | Ser | Lys | Ser | Gln | Lys | Ile | | | | |
| | | | | 245 | | | | | 250 | | | | | | | | |

<210> 264

<211> 293

<212> PRT

<213> Chlamydia pneumoniae

<400> 264

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Leu | Ile | Phe | Asn | Ile | Asn | Lys | Glu | Val | Lys | Val | Tyr | Leu | Val | Leu | Met | | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | | |

Asn Lys Arg Leu Lys Ile Ile Leu Thr Asn Asp Asp Gly Ile Thr Ala
 20 25 30
 Lys Gly Met Ser Cys Leu Val Ser Ala Leu Leu Glu Ala Asn Ile Gly
 35 40 45
 Asp Ile Tyr Ile Ala Ala Pro Gln Ala Glu Gln Ser Gly Lys Ser Met
 50 55 60
 Ala Ile Ser Leu Asn Gln Val Val Cys Ala Ser Pro Tyr Ala Tyr Pro
 65 70 75 80
 Gln Pro Val Lys Glu Ala Trp Ala Val Gly Ser Pro Thr Asp Cys
 85 90 95
 Val Arg Leu Gly Leu Arg Thr Leu Phe Glu Ser Val Ser Pro Asp Leu
 100 105 110
 Val Ile Ser Gly Ile Asn Cys Gly Asn Asn Ile Cys Lys Asn Ala Trp
 115 120 125
 Tyr Ser Gly Thr Ile Gly Ala Ala Lys Gln Ala Leu Val Asp Gly Ile
 130 135 140
 Pro Ser Met Ala Leu Ser Gln Asp Asn His Ile Ser Phe Phe Gln Gln
 145 150 155 160
 Asp Lys Ala Pro Glu Ile Leu Lys Ala Leu Val Ile Tyr Leu Leu Ser
 165 170 175
 Gln Pro Phe Pro Cys Leu Thr Gly Leu Asn Ile Asn Phe Pro Thr Ser
 180 185 190
 Pro Gly Gly Ser Ser Trp Glu Gly Met Arg Leu Val Pro Pro Gly Asp
 195 200 205
 Glu Phe Phe Tyr Glu Glu Pro Gln Tyr Leu Gly Ser Val Asn Lys Asn
 210 215 220
 Gln Tyr Tyr Val Gly Lys Ile Ser Gly Val Arg Ile Gly Glu His Pro
 225 230 235 240
 Ser Glu Glu Leu Ala Cys Met Leu Glu Asn His Ile Ser Val Ser Pro
 245 250 255
 Ile Phe Ser Gln Asn Ser Pro Ile Gly Leu Met Thr Leu Glu Glu Phe
 260 265 270
 Gln Lys Thr Gln Glu Asn Phe Asn Ala Ser Leu Leu Ser Ser Glu Leu
 275 280 285
 Thr Thr Lys Ile Phe
 290

<210> 265
 <211> 321
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 265
 Ser Thr Ala Leu Ser Arg Arg Lys Leu Arg Val Arg Pro Pro Ser Leu
 1 5 10 15
 Ala Lys Tyr Ala Phe Arg Gly Phe Arg Met Ser His Gly Pro Arg Pro
 20 25 30
 Thr Lys Phe Ser Phe Pro Leu Tyr Phe Ser Lys Thr Leu Ser Trp Phe
 35 40 45
 Ile Leu Gly Gly Phe Leu Ala Cys Gly Val Gln Met Val Leu Val
 50 55 60
 Pro Asn Glu Leu Ile Asp Gly Gly Ile Val Gly Leu Ser Ile Ile Ala
 65 70 75 80
 Ser His Phe Leu Gly His Lys Ala Leu Pro Phe Cys Leu Val Leu Phe
 85 90 95
 Asn Leu Pro Phe Val Phe Leu Ala Phe Lys Gln Ile Gly Lys Tyr Phe
 100 105 110
 Val Ile Gln Met Leu Thr Ala Val Ile Ile Phe Ser Cys Ser Leu Trp
 115 120 125
 Leu Ile Asp Gln Leu Pro Ser Trp Leu Gly Met Ser Pro Phe Val Phe
 130 135 140

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Gly | Ser | Glu | Met | Glu | Thr | Val | Val | Leu | Gly | Gly | Ala | Ile | Ile | Gly |
| 145 | | | | | 150 | | | | 155 | | | | | | 160 |
| Val | Gly | Cys | Gly | Leu | Ile | Ile | Arg | His | Gly | Gly | Ser | Thr | Asp | Gly | Thr |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Glu | Ile | Leu | Gly | Ile | Ile | Ile | Asn | Lys | Lys | Lys | Gly | Tyr | Thr | Val | Gly |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Gln | Ile | Ile | Leu | Phe | Val | Asn | Phe | Phe | Ile | Phe | Ala | Leu | Ser | Gly | Ile |
| | | | 195 | | | | 200 | | | | | 205 | | | |
| Val | Tyr | Lys | Asn | Trp | His | Thr | Ala | Phe | Val | Ser | Phe | Leu | Thr | Tyr | Gly |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ile | Ala | Thr | Lys | Val | Met | Asp | Met | Val | Ile | Leu | Gly | Leu | Glu | Asp | Thr |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Lys | Ser | Val | Thr | Ile | Ile | Thr | Ser | Ser | Pro | Arg | Lys | Leu | Gly | His | Ile |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Leu | Met | Glu | Thr | Leu | Gly | Ile | Gly | Leu | Thr | Tyr | Ile | His | Ala | Glu | Gly |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Gly | Tyr | Ser | Gly | Glu | Pro | Arg | Asn | Leu | Leu | Tyr | Val | Val | Val | Glu | Arg |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Gln | Leu | Ser | Gln | Leu | Lys | Glu | Ile | Val | His | Arg | Glu | Asp | Pro | Ser |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ala | Phe | Ile | Ala | Ile | Glu | Asn | Leu | His | Glu | Val | Ile | Asn | Gly | Arg | Arg |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Thr | | | | | | | | | | | | | | | |

<210> 266
 <211> 192
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 266 | | | | | | | | | | | | | | | |
| Met | Lys | Arg | Tyr | Val | Val | Gly | Ile | Ser | Gly | Ala | Ser | Gly | Val | Ile | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ala | Val | Lys | Leu | Ile | Lys | Glu | Leu | Val | Asn | Ala | Lys | His | Gln | Val | Glu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Val | Ile | Ile | Ser | Pro | Ser | Gly | Arg | Lys | Thr | Leu | Tyr | Tyr | Glu | Leu | Gly |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Cys | Gln | Ser | Phe | Asp | Ala | Leu | Phe | Ser | Glu | Glu | Asn | Leu | Glu | Tyr | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| His | Thr | His | Ser | Ile | Gln | Ala | Ile | Glu | Ser | Ser | Leu | Ala | Ser | Gly | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Cys | Pro | Val | Glu | Ala | Thr | Ile | Ile | Ile | Pro | Cys | Ser | Met | Thr | Thr | Val |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Ala | Ala | Ile | Ser | Ile | Gly | Leu | Ala | Asp | Asn | Leu | Leu | Arg | Arg | Val | Ala |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asp | Val | Ala | Leu | Lys | Glu | Arg | Arg | Pro | Leu | Ile | Leu | Val | Pro | Arg | Glu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Thr | Pro | Leu | His | Thr | Ile | His | Leu | Glu | Asn | Leu | Leu | Lys | Leu | Ser | Lys |
| | | 130 | | | | 135 | | | | | | 140 | | | |
| Ser | Gly | Ala | Thr | Ile | Phe | Pro | Pro | Met | Pro | Met | Trp | Tyr | Phe | Lys | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gln | Ser | Val | Glu | Asp | Leu | Glu | Asn | Ala | Leu | Val | Gly | Lys | Ile | Leu | Ala |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Tyr | Leu | Asn | Ile | Pro | Ser | Asp | Leu | Thr | Lys | Gln | Trp | Ser | Asn | Pro | Glu |
| | | | 180 | | | | | 185 | | | | | 190 | | |

<210> 267
 <211> 301
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 267

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Ile | Ile | Ile | Val | Arg | Leu | Asn | Tyr | Phe | Leu | Asn | Leu | Val | Asn | Phe |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Lys | Tyr | Ser | Ile | Phe | Ser | Ile | Leu | Phe | Leu | Ser | Ala | Ser | Thr | Val | Phe |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Leu | Ser | Ile | Asn | Glu | Ile | Ser | Gln | Asn | Leu | Ser | Phe | Lys | Glu | Gly |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Phe | Lys | Ile | Ser | Val | Phe | Gly | Ala | Ile | Ala | Phe | Val | Phe | Ala | Arg | Thr |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Thr | Gly | Ile | Val | Val | Asn | Gln | Cys | Ile | Asp | Arg | Phe | Ile | Asp | Lys | Lys |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Asn | Thr | Arg | Thr | Ser | Lys | Arg | Val | Leu | Pro | Ala | Asn | Leu | Val | Ser | Leu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Asn | Phe | Ala | Trp | Val | Leu | Ser | Leu | Phe | Cys | Ser | Phe | Leu | Phe | Leu | Phe |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Cys | Lys | Ile | Leu | Arg | Ile | Phe | Ser | Leu | Gly | Ile | Ala | Ser | Leu | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Met | Ile | Val | Tyr | Pro | Tyr | Met | Lys | Arg | Val | Thr | Phe | Phe | Cys | His |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Trp | Gly | Leu | Gly | Leu | Val | Tyr | Thr | Val | Ala | Ile | Leu | Met | Asn | Phe | Cys |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | Phe | Ala | Glu | Ser | Gly | Leu | Ser | Met | Arg | Leu | Cys | Phe | Leu | Ala | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Trp | Gly | Gly | Ser | Val | Gly | Met | Val | Ile | Ala | Ala | Asn | Asp | Ile | Ile |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Tyr | Ala | Ile | Glu | Asp | Thr | Glu | Phe | Asp | Arg | Glu | Glu | Gly | Leu | Arg | Ser |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Val | Pro | Ala | His | Tyr | Gly | Glu | Lys | Lys | Ala | Val | Glu | Ile | Ala | Lys | Val |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Asn | Leu | Trp | Val | Ser | Tyr | Leu | Ala | Tyr | Ile | Phe | Ser | Gly | Phe | Val | Gly |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ser | Leu | Asp | Lys | Glu | Phe | Tyr | Phe | Thr | Ala | Ile | Ile | Pro | Leu | Val | Val |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ile | Leu | Lys | Val | Val | Arg | Met | Tyr | Ser | Asn | Tyr | Ser | Lys | Lys | Asp | Gln |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Glu | Gly | Glu | Ser | Lys | Phe | Phe | Leu | Ala | Asn | Ile | Ala | Ile | Ala | Leu | Ser |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Phe | Leu | Val | Ser | Met | Thr | Leu | Phe | Trp | Ser | Leu | Ser | Arg | | | |
| | 290 | | | | | 295 | | | | | 300 | | | | |

<210> 268

<211> 232

<212> PRT

<213> Chlamydia pneumoniae

<400> 268

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Met | Ala | Leu | Asp | Glu | Ile | Asn | Asn | Gln | Asn | Asn | Pro | Ser | Gln | Gln |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Ala | Ser | Ser | Thr | Ser | Gln | Thr | Ser | Lys | Ile | Asn | Gln | Asp | Arg | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Thr | Phe | Ala | Cys | Thr | Val | Thr | Leu | Leu | Val | Val | Ala | Thr | Leu | Met | Ile |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Ser | Gly | Ile | Val | Leu | Leu | Phe | Thr | Ile | Gly | Ser | Leu | Gly | Leu | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Val | Pro | Leu | Ser | Gly | Ile | Leu | Gly | Thr | Phe | Ala | Val | Thr | Val | Gly | Ala |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Val | Leu | Phe | Ile | Thr | Gly | Leu | Thr | Ile | Leu | Val | Arg | Lys | Ser | Leu | Gly |
| | | | | 85 | | | | 90 | | | | | | 95 | |
| Ile | Glu | Gln | Lys | Asn | Glu | Asp | Leu | Asn | Phe | Leu | Lys | Ile | Lys | Thr | Pro |
| | | | 100 | | | | | 105 | | | | | | 110 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Pro | Pro | Ala | Arg | Pro | Leu | Met | Ser | Lys | Phe | Ser | Val | Thr | Cys | Ser |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Thr | Thr | Ser | Ile | Val | Leu | Gly | Met | Ala | Leu | Leu | Ile | Gly | Ala | Val | Val |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ser | Val | Phe | Phe | Leu | Thr | Gly | Tyr | Leu | Gln | Leu | Gly | Leu | Cys | Ala | Gly |
| 145 | | | | | 150 | | | | 155 | | | | | | 160 |
| Leu | Val | Gly | Leu | Gly | Thr | Ala | Leu | Phe | Val | Ala | Gly | Leu | Ala | Arg | Met |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ser | Pro | Arg | Ser | Leu | Ala | Asp | Gln | Glu | Gly | Ser | Gly | Ser | Ala | Asp | Ser |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Gln | Ser | Asn | Ile | Val | Gly | Ile | Gly | Glu | Pro | Lys | Ala | Ala | Gln | Glu | Gln |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Lys | Trp | Tyr | Lys | Met | Ala | Val | Val | Arg | Gly | Glu | Asp | Gly | Ile | Pro | Thr |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ala | Ile | Arg | Leu | Thr | Pro | Glu | Lys | | | | | | | | |
| 225 | | | | | | 230 | | | | | | | | | |

<210> 269

<211> 263

<212> PRT

<213> Chlamydia pneumoniae

<400> 269

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ser | Ile | Met | Ser | Leu | Asn | Lys | Thr | Asn | Ala | Leu | Leu | Asn | Gln | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Glu | Pro | Ala | Val | Cys | Leu | Asn | Ala | Trp | Asp | Pro | Lys | Tyr | Ile | Asn | Gln |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Asp | Arg | Lys | Thr | Phe | Ala | Cys | Thr | Val | Thr | Leu | Leu | Val | Ile | Ala | Thr |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Met | Ile | Leu | Thr | Thr | Gly | Val | Ile | Val | Leu | Leu | Ala | Met | Gly | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Pro | Gly | Leu | Ser | Val | Leu | Val | Ser | Thr | Ile | Ile | Gly | Thr | Ser | Val | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Thr | Leu | Gly | Thr | Ala | Leu | Phe | Ile | Ile | Gly | Leu | Val | Lys | Leu | Ile | Lys |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Lys | Ser | Leu | Ala | Trp | Ile | Gln | Tyr | Gln | Lys | Tyr | Phe | Gln | Glu | Val | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Lys | Gln | Lys | Tyr | Glu | Pro | Phe | Ser | Ile | Pro | Lys | Asn | Asp | Asn | Val | His |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Lys | Leu | Thr | Ser | Cys | Leu | Pro | Ser | Pro | Leu | Asp | Ile | Glu | Ser | Pro | Ser |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Pro | Glu | Ala | Ser | Thr | Pro | Val | Ser | Lys | Leu | Arg | Ile | Ala | Cys | Ser | Gly |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Val | Ala | Ile | Val | Leu | Gly | Val | Thr | Leu | Leu | Ile | Gly | Ala | Val | Val | Ser |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Val | Phe | Phe | Cys | Thr | Gly | Tyr | Leu | Gln | Leu | Ala | Leu | Cys | Val | Gly | Phe |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ala | Cys | Leu | Gly | Thr | Ala | Leu | Phe | Val | Gly | Gly | Leu | Ala | Gly | Leu | Arg |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Thr | His | Ser | Leu | Ile | Ala | Gln | Gly | Ile | Met | Tyr | Leu | Tyr | Leu | Thr | Tyr |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Tyr | Leu | Ser | Ser | Ala | Leu | Glu | Glu | Arg | Asn | Glu | Thr | Val | Lys | Asp | Gln |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Arg | Asn | Glu | Ile | Asn | Thr | Tyr | Leu | Thr | Glu | Glu | Cys | Arg | Gln | Gln | Lys |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Arg | Glu | Lys | Ala | Leu | Leu | Glu | | | | | | | | | |
| | | | | | | 260 | | | | | | | | | |

<210> 270
 <211> 135
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 270
 Lys Gln Trp Ala Leu Ser Leu Met Ser Gln Cys Gln Ser Ser Ser Thr
 1 5 10 15
 Ser Thr Trp Glu Trp Met Lys Ser Phe Val Pro Asn Trp Lys Asn Pro
 20 25 30
 Thr Pro Pro Leu Ser Pro Ile Pro Ser Glu Asp Glu Phe Ile Leu Ala
 35 40 45
 Tyr Glu Pro Phe Val Leu Pro Lys Thr Asp Pro Glu Asn Ala Gln Ala
 50 55 60
 Asn Pro Pro Gly Thr Ser Thr Pro Asn Val Glu Asn Gly Ile Asp Asp
 65 70 75 80
 Leu Asn Pro Leu Leu Gly Gln Pro Asn Glu Gln Asn Asn Ala Asn Asn
 85 90 95
 Pro Gly Thr Ser Gly Ser Asn Pro Thr Ser Leu Pro Ala Pro Glu Arg
 100 105 110
 Leu Pro Glu Thr Glu Glu Asn Ser Gln Glu Glu Glu Gln Gly Ser Gln
 115 120 125
 Asn Asn Glu Asp Leu Ile Gly
 130 135

<210> 271
 <211> 331
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 271
 Val Ala Phe Arg Cys Val Met Thr Ile Asp Met His Cys Asp Leu Leu
 1 5 10 15
 Ser His Pro His Phe Cys Arg Lys Asp Pro Ala Val Arg Cys Ser Pro
 20 25 30
 Glu Gln Leu Leu Ser Gly Gly Val Arg Gln Gln Val Cys Ala Ile Phe
 35 40 45
 Val Pro His Ser Arg Gly Glu Pro Asn Cys Asp Lys Gln Asn Ser Leu
 50 55 60
 Phe Phe Ser Leu Pro Asn Gln Tyr Pro Asp Ile Gly Leu Leu Ser Tyr
 65 70 75 80
 Glu Glu Glu Glu Asn Gly Ser Ser Ser Gln Lys Lys Ser Leu Ser Leu
 85 90 95
 Ile Arg Ser Ile Glu Asn Ala Ser Ala Leu Gly Asp Asp Thr Ala Pro
 100 105 110
 Leu Gly Thr Leu Leu Ala Lys Leu Ile His Leu Thr Lys Gln Gly Pro
 115 120 125
 Leu Ala Tyr Leu Gly Ile Val Trp Lys Gly Asp Asn Arg Phe Gly Gly
 130 135 140
 Gly Thr Glu Ala Pro Lys Arg Leu Ser Asn Asp Gly Lys Val Leu Leu
 145 150 155 160
 Asp Ile Met Tyr Glu Leu Gly Val Pro Ile Asp Leu Ser His Cys Ser
 165 170 175
 Asp Lys Leu Ala Glu Asp Ile Leu Asp Tyr Thr Ala Asp Lys Leu Pro
 180 185 190
 Asn Leu Ala Val Ile Ala Ser His Ser Asn Phe Arg Ser Val Leu Asp
 195 200 205
 His Arg Arg Asn Leu Val Asp Ala His Ala Lys Glu Ile Val Arg Arg
 210 215 220
 Lys Gly Val Ile Gly Leu Asn Leu Val Arg Ser Tyr Val Gly Asp Ser
 225 230 235 240

<210> 273
 <211> 245
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 273
 Lys Leu Met Thr Asp Tyr Ser Phe Phe Arg Arg Lys Ile Gly Asn Ile
 1 5 10 15
 Glu Ala Ile Glu Cys Pro Gly Asn Pro Gln Asp Pro Ile Ile Ile Leu
 20 25 30
 Cys His Gly Tyr Gly Ser Leu Ala Asp Asn Leu Thr Phe Phe Pro Ser
 35 40 45
 Ile Cys Ser Phe Ser Lys Leu Arg Pro Thr Trp Ile Phe Pro Asn Gly
 50 55 60
 Ile Leu Pro Leu Glu Asn Asp Phe Arg Gly Ser Arg Ala Cys Phe Pro
 65 70 75 80
 Leu Asn Val Leu Leu Leu Gln Glu Leu Ser Arg Leu Tyr Ala Asn Gly
 85 90 95
 Val Gly Asn Leu Gln Glu Lys Tyr Asp Glu Leu Phe Asp Val Asp Leu
 100 105 110
 Glu Thr Pro Lys Glu Ala Leu Glu Glu Leu Ile Leu Asn Leu Asn Arg
 115 120 125
 Pro Tyr Asn Glu Ile Ile Ile Gly Gly Phe Ser Gln Gly Ala Ile Leu
 130 135 140
 Ala Thr His Leu Val Leu Thr Ser Gln Asn Pro Tyr Ala Gly Ala Leu
 145 150 155 160
 Ile Phe Ala Gly Ala Arg Leu Phe Asn Gln Gly Trp Glu Glu Gly Leu
 165 170 175
 Lys Gln Cys Ala Gln Val Pro Phe Leu Gln Ser His Gly Tyr Glu Asp
 180 185 190
 Glu Ile Leu Pro Tyr His Leu Gly Ala His Leu Asn Asp Leu Leu Leu
 195 200 205
 Thr Lys Leu Asn Gly Gln Phe Val Ser Phe His Gly Gly His Glu Ile
 210 215 220
 Pro Ser Val Val Phe Gln Lys Met Gln Val Thr Val Pro Asn Trp Ile
 225 230 235 240
 Asp Pro Ala Arg Gly
 245

<210> 274
 <211> 311
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 274
 Phe Asn Arg Gln Ser Asp Ala Thr Tyr Ala Thr Trp Val Met His Leu
 1 5 10 15
 Glu Glu Glu Asn Gln Gly Trp Glu Ala Leu Leu Arg Lys Val Tyr His
 20 25 30
 Gln Glu Val Pro Pro Ala Ile Leu Leu His Gly Phe Thr Leu Pro Val
 35 40 45
 Leu Gln Asp Lys Ala Glu Gln Leu Ala Ser Glu Ile Leu Leu Ser Ser
 50 55 60
 Ser Pro Gly Ser Glu His Lys Val Ser Gln Lys Ile His Pro Asp Ile
 65 70 75 80
 Tyr Gln Phe Phe Pro Glu Gly Lys Gly Arg Leu His Ser Ile Asp Leu
 85 90 95
 Pro Arg Gly Ile Lys Lys Gln Ile Tyr Ile Ser Pro Phe Glu Ala Asn
 100 105 110
 Tyr Lys Ile Tyr Ile Ile His Glu Ala Asp Arg Met Thr Leu Ala Ala
 115 120 125

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Ser | Ala | Phe | Leu | Lys | Val | Phe | Glu | Glu | Pro | Pro | Lys | His | Ala | Val |
| 130 | | | | | | 135 | | | | | 140 | | | | |
| Ile | Ile | Leu | Thr | Thr | Ala | Lys | Val | Gln | Arg | Leu | Pro | Lys | Thr | Ile | Ile |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Arg | Ser | Leu | Ser | Ile | Phe | Ile | Glu | Arg | Gly | Glu | Lys | Ile | Leu | Cys |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Ser | Lys | Glu | Thr | Phe | Ser | Tyr | Leu | Phe | Arg | Tyr | Ala | Gln | Cys | Glu | Ile |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Pro | Val | Thr | Glu | Val | Ser | Gln | Ile | Ile | Lys | Glu | Ser | Ser | Glu | Thr | Asp |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Lys | Gln | Val | Leu | Arg | Asp | Lys | Val | Gln | Arg | Phe | Met | Glu | Val | Leu | Leu |
| | 210 | | | | | 215 | | | | 220 | | | | | |
| Glu | Leu | Tyr | Arg | Asp | Arg | Tyr | Thr | Leu | Asn | Leu | Gly | Leu | Lys | Ala | Ser |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ala | Leu | Asn | Tyr | Pro | Glu | His | Val | Lys | Glu | Ile | Leu | Gln | Leu | Pro | Leu |
| | | | 245 | | | | | 250 | | | | | | 255 | |
| Leu | Pro | Leu | Asp | Lys | Val | Leu | Leu | Ile | Val | Glu | Ser | Ala | Cys | Arg | Ser |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Asn | Asn | Ser | Ser | Ser | Ala | Ala | Ser | Val | Leu | Glu | Trp | Val | Ala | Ile |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Gln | Leu | Val | Ser | Leu | Gln | Tyr | Lys | Glu | Lys | Glu | Leu | Val | Ser | Val | Ser |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Pro | Gly | Gln | Asp | Leu | Ser | Asn | | | | | | | | | |
| 305 | | | | | 310 | | | | | | | | | | |

<210> 275

<211> 209

<212> PRT

<213> Chlamydia pneumoniae

<400> 275

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Ser | Ile | Val | Phe | Ile | Val | Ile | Glu | Gly | Gly | Glu | Gly | Ser | Gly | Lys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Ser | Leu | Ala | Lys | Ala | Leu | Gly | Asp | Gln | Leu | Val | Ala | Gln | Asp | Arg |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Lys | Val | Leu | Leu | Thr | Arg | Glu | Pro | Gly | Gly | Cys | Leu | Ile | Gly | Glu | Arg |
| | | | 35 | | | | 40 | | | | | 45 | | | |
| Leu | Arg | Asp | Leu | Ile | Leu | Glu | Pro | Pro | His | Leu | Glu | Leu | Ser | Arg | Cys |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Cys | Glu | Leu | Phe | Leu | Phe | Leu | Gly | Ser | Arg | Ala | Gln | His | Ile | Gln | Glu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Val | Ile | Ile | Pro | Ala | Leu | Arg | Asp | Gly | Tyr | Ile | Val | Ile | Cys | Glu | Arg |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Phe | His | Asp | Ser | Thr | Ile | Val | Tyr | Gln | Gly | Ile | Ala | Glu | Gly | Leu | Gly |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ala | Asp | Phe | Val | Ala | Asp | Leu | Cys | Ser | Lys | Val | Val | Gly | Pro | Thr | Pro |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Phe | Leu | Pro | Asn | Phe | Val | Leu | Leu | Asp | Ile | Pro | Ala | Asp | Ile | Gly | |
| | 130 | | | | | 135 | | | | 140 | | | | | |
| Leu | Gln | Arg | Lys | His | Arg | Gln | Lys | Val | Phe | Asp | Lys | Phe | Glu | Lys | Lys |
| 145 | | | | 150 | | | | | | 155 | | | | | 160 |
| Pro | Leu | Ser | Tyr | His | Asn | Arg | Ile | Arg | Glu | Gly | Phe | Leu | Ser | Leu | Ala |
| | | | 165 | | | | | 170 | | | | | 175 | | |
| Ser | Ala | Asp | Pro | Ser | Arg | Tyr | Leu | Val | Leu | Asp | Ala | Arg | Glu | Ser | Leu |
| | | 180 | | | | | 185 | | | | | 190 | | | |
| Ala | Ser | Leu | Ile | Asp | Lys | Val | Met | Leu | His | Thr | Gln | Leu | Gly | Leu | Cys |
| | | 195 | | | | | 200 | | | | | 205 | | | |

Thr

<210> 276
 <211> 839
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 276
 Glu Ser Thr Ile Pro Met Phe Asn Lys Asp Glu Ile Ile Val Pro Lys
 1 5 10 15
 Asn Leu Glu Glu Glu Met Lys Glu Ser Tyr Leu Arg Tyr Ser Met Ser
 20 25 30
 Val Ile Ile Ser Arg Ala Leu Pro Asp Ile Arg Asp Gly Leu Lys Pro
 35 40 45
 Ser Gln Arg Arg Val Leu Tyr Ala Met Lys Gln Leu Ser Leu Ser Pro
 50 55 60
 Gly Ala Lys His Arg Lys Cys Ala Lys Ile Cys Gly Asp Thr Ser Gly
 65 70 75 80
 Asp Tyr His Pro His Gly Glu Ser Val Ile Tyr Pro Thr Leu Val Arg
 85 90 95
 Met Ala Gln Asn Trp Ala Met Arg Tyr Pro Leu Val Asp Gly Gln Gly
 100 105 110
 Asn Phe Gly Ser Ile Asp Gly Asp Pro Pro Ala Ala Met Arg Tyr Thr
 115 120 125
 Glu Ala Arg Leu Thr His Ser Ala Met Tyr Leu Met Glu Asp Leu Asp
 130 135 140
 Lys Asp Thr Val Asp Ile Val Pro Asn Tyr Asp Glu Thr Lys His Glu
 145 150 155 160
 Pro Val Val Phe Pro Ser Lys Phe Pro Asn Leu Leu Cys Asn Gly Ser
 165 170 175
 Ser Gly Ile Ala Val Gly Met Ala Thr Asn Ile Pro Pro His Asn Leu
 180 185 190
 Gly Glu Leu Ile Glu Ala Thr Leu Leu Leu Leu Ala Asn Pro Gln Ala
 195 200 205
 Ser Val Asp Glu Ile Leu Gln Val Met Pro Gly Pro Asp Phe Pro Thr
 210 215 220
 Gly Gly Ile Ile Cys Gly Ser Glu Gly Ile Arg Ser Ala Tyr Thr Thr
 225 230 235 240
 Gly Arg Gly Lys Ile Lys Val Arg Ala Arg Leu His Val Glu Glu Asn
 245 250 255
 Glu Asp Lys His Arg Glu Ser Ile Ile Ile Thr Glu Met Pro Tyr Asn
 260 265 270
 Val Asn Lys Ser Arg Leu Ile Glu Gln Ile Ala Asn Leu Val Asn Glu
 275 280 285
 Lys Thr Leu Ala Gly Ile Ser Asp Val Arg Asp Glu Ser Asp Lys Asp
 290 295 300
 Gly Ile Arg Val Val Leu Glu Ile Lys Lys Gly Glu Ser Ser Glu Ile
 305 310 315 320
 Ile Ile Asn Arg Leu Tyr Lys Phe Thr Asp Val Gln Val Thr Phe Gly
 325 330 335
 Ala Asn Met Leu Ala Leu Asp Lys Asn Leu Pro Arg Thr Met Ser Ile
 340 345 350
 His Arg Met Ile Ser Ala Trp Ile Arg His Arg Lys Glu Val Ile Arg
 355 360 365
 Arg Arg Thr Arg Tyr Glu Leu Asn Lys Ala Glu Thr Arg Ala His Val
 370 375 380
 Leu Glu Gly Tyr Leu Lys Ala Leu Ser Cys Leu Asp Ala Leu Val Lys
 385 390 395 400
 Thr Ile Arg Glu Ser Gly Asn Lys Glu His Ala Lys Glu Arg Ile Ile
 405 410 415
 Glu Ser Phe Gly Phe Thr Glu Pro Gln Ala Leu Ala Ile Leu Glu Leu
 420 425 430

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Leu | Tyr | Gln | Leu | Thr | Gly | Leu | Glu | Ala | Glu | Lys | Ile | Gln | Lys | Glu |
| | 435 | | | | | | 440 | | | | | 445 | | | |
| Tyr | Glu | Glu | Leu | Leu | Asn | Lys | Ile | Ala | Tyr | Tyr | Lys | Gln | Val | Leu | Ser |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Asp | Glu | Gly | Leu | Val | Lys | Asp | Ile | Ile | Arg | Asn | Glu | Leu | Gln | Asp | Leu |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Leu | Lys | His | His | Lys | Val | Ala | Arg | Arg | Thr | Thr | Ile | Glu | Phe | Asp | Ala |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Asp | Asp | Ile | Arg | Asp | Ile | Glu | Asp | Ile | Ile | Thr | Asn | Glu | Ser | Val | Ile |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Ile | Thr | Ile | Ser | Gly | Asp | Asp | Tyr | Val | Lys | Arg | Met | Pro | Val | Lys | Val |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Phe | Lys | Glu | Gln | Arg | Arg | Gly | Gly | His | Gly | Val | Thr | Gly | Phe | Asp | Met |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Lys | Lys | Gly | Ala | Gly | Phe | Leu | Lys | Ala | Val | Tyr | Ser | Ala | Phe | Thr | Lys |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Asp | Tyr | Leu | Leu | Ile | Phe | Thr | Asn | Phe | Gly | Gln | Cys | Tyr | Trp | Leu | Lys |
| | | | | 565 | | | | 570 | | | | | | 575 | |
| Val | Trp | Gln | Leu | Pro | Glu | Gly | Glu | Arg | Arg | Ala | Lys | Gly | Lys | Pro | Ile |
| | | 580 | | | | | | 585 | | | | | 590 | | |
| Ile | Asn | Phe | Leu | Glu | Gly | Ile | Arg | Pro | Gly | Glu | Glu | Leu | Ala | Ala | Ile |
| | 595 | | | | | | 600 | | | | | 605 | | | |
| Leu | Asn | Ile | Lys | Asn | Phe | Asp | Asn | Ala | Gly | Phe | Leu | Phe | Leu | Ala | Thr |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Lys | Arg | Gly | Val | Val | Lys | Lys | Val | Ser | Leu | Asp | Ala | Phe | Ser | Asn | Pro |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Arg | Lys | Lys | Gly | Ile | Arg | Ala | Leu | Glu | Ile | Asp | Glu | Gly | Asp | Glu | Leu |
| | | | | 645 | | | | 650 | | | | | | 655 | |
| Ile | Ala | Ala | Cys | His | Ile | Val | Ser | Asp | Glu | Glu | Lys | Val | Met | Leu | Phe |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Thr | His | Leu | Gly | Met | Ala | Val | Arg | Phe | Pro | His | Glu | Lys | Val | Arg | Pro |
| | | 675 | | | | | 680 | | | | | | 685 | | |
| Met | Gly | Arg | Thr | Ala | Arg | Gly | Val | Arg | Gly | Val | Ser | Leu | Lys | Asn | Glu |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Glu | Asp | Lys | Val | Val | Ser | Cys | Gln | Ile | Val | Thr | Glu | Asn | Gln | Ser | Val |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Leu | Ile | Val | Cys | Asp | Gln | Gly | Phe | Gly | Lys | Arg | Ser | Leu | Val | Glu | Asp |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Phe | Arg | Glu | Thr | Asn | Arg | Gly | Gly | Val | Gly | Val | Arg | Ser | Ile | Leu | Ile |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Asn | Glu | Arg | Asn | Gly | Asn | Val | Leu | Gly | Ala | Ile | Pro | Val | Thr | Asp | His |
| | 755 | | | | | | 760 | | | | | | 765 | | |
| Asp | Ser | Ile | Leu | Leu | Met | Ser | Ser | Gln | Gly | Gln | Ala | Ile | Arg | Ile | Asn |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Met | Gln | Asp | Val | Arg | Val | Met | Gly | Arg | Ser | Thr | Gln | Gly | Val | Arg | Leu |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Val | His | Leu | Lys | Glu | Gly | Asp | Ala | Leu | Val | Ser | Met | Glu | Lys | Leu | Ser |
| | | | 805 | | | | | 810 | | | | | 815 | | |
| Ser | Asn | Glu | Asn | Asp | Asp | Glu | Val | Leu | Ser | Gly | Ser | Glu | Glu | Glu | Cys |
| | | | 820 | | | | | 825 | | | | | 830 | | |
| Ser | Asp | Thr | Val | Ser | Leu | Arg | | | | | | | | | |
| | | | 835 | | | | | | | | | | | | |

<210> 277
 <211> 806
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 277
 Phe Met Asp Pro Lys Glu Lys Asn Tyr Asp Ala Ser Ala Ile Thr Val
 1 5 10 15

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Glu | Gly | Leu | Gln | Ala | Val | Arg | Glu | Arg | Pro | Gly | Met | Tyr | Ile | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Asp | Thr | Gly | Ile | Thr | Gly | Leu | His | His | Leu | Val | Tyr | Glu | Val | Val | Asp |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Asn | Ser | Ile | Asp | Glu | Ala | Met | Ala | Gly | Tyr | Cys | Ser | Arg | Ile | Asp | Val |
| | | 50 | | | | 55 | | | | | 60 | | | | |
| Arg | Ile | Leu | Glu | Asp | Gly | Gly | Ile | Val | Ile | Val | Asp | Asn | Gly | Arg | Gly |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ile | Pro | Ile | Glu | Val | His | Glu | Arg | Glu | Ser | Ala | Lys | Gln | Gly | Arg | Glu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Val | Ser | Ala | Leu | Glu | Val | Val | Leu | Thr | Val | Leu | His | Ala | Gly | Gly | Lys |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Phe | Asp | Lys | Asp | Ser | Tyr | Lys | Val | Ser | Gly | Gly | Leu | His | Gly | Val | Gly |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Val | Ser | Cys | Val | Asn | Ala | Leu | Ser | Glu | Lys | Leu | Val | Ala | Thr | Val | Phe |
| | | 130 | | | | 135 | | | | | 140 | | | | |
| Lys | Asp | Lys | Lys | Cys | Tyr | Gln | Met | Glu | Phe | Ser | Arg | Gly | Ile | Pro | Val |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Thr | Pro | Leu | Gln | Tyr | Val | Ser | Val | Ser | Asp | Arg | Gln | Gly | Thr | Glu | Ile |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Val | Phe | Tyr | Pro | Asp | Pro | Lys | Ile | Phe | Ser | Thr | Cys | Thr | Phe | Asp | Arg |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ser | Ile | Leu | Met | Lys | Arg | Leu | Arg | Glu | Leu | Ala | Phe | Leu | Asn | Arg | Gly |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ile | Thr | Ile | Val | Phe | Glu | Asp | Asp | Arg | Asp | Val | Ser | Phe | Asp | Lys | Val |
| | 210 | | | | 215 | | | | | | 220 | | | | |
| Thr | Phe | Phe | Tyr | Glu | Gly | Gly | Ile | Gln | Ser | Phe | Val | Ser | Tyr | Leu | Asn |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Gln | Asn | Lys | Glu | Ser | Leu | Phe | Ser | Glu | Pro | Ile | Tyr | Ile | Cys | Gly | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Arg | Val | Gly | Asp | Asp | Gly | Glu | Ile | Glu | Phe | Glu | Ala | Ala | Leu | Gln | Trp |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Asn | Ser | Gly | Tyr | Ser | Glu | Leu | Val | Tyr | Ser | Tyr | Ala | Asn | Asn | Ile | Pro |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Thr | Arg | Gln | Gly | Gly | Thr | His | Leu | Thr | Gly | Phe | Ser | Thr | Ala | Leu | Thr |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Arg | Val | Ile | Asn | Thr | Tyr | Ile | Lys | Ala | His | Asn | Leu | Ala | Lys | Asn | Asn |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Lys | Leu | Ala | Leu | Thr | Gly | Glu | Asp | Ile | Arg | Glu | Gly | Leu | Thr | Ala | Val |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ile | Ser | Val | Lys | Val | Pro | Asn | Pro | Gln | Phe | Glu | Gly | Gln | Thr | Lys | Gln |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Lys | Leu | Gly | Asn | Ser | Asp | Val | Ser | Ser | Val | Ala | Gln | Gln | Val | Val | Gly |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Glu | Ala | Leu | Thr | Ile | Phe | Phe | Glu | Glu | Asn | Pro | Gln | Ile | Ala | Arg | Met |
| | | 370 | | | | 375 | | | | | 380 | | | | |
| Ile | Val | Asp | Lys | Val | Phe | Val | Ala | Ala | Gln | Ala | Arg | Glu | Ala | Ala | Lys |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Lys | Ala | Arg | Glu | Leu | Thr | Leu | Arg | Lys | Ser | Ala | Leu | Asp | Ser | Ala | Arg |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Leu | Pro | Gly | Lys | Leu | Ile | Asp | Cys | Leu | Glu | Lys | Asp | Pro | Glu | Lys | Cys |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Glu | Met | Tyr | Ile | Val | Glu | Gly | Asp | Ser | Ala | Gly | Gly | Ser | Ala | Lys | Gln |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Gly | Arg | Asp | Arg | Arg | Phe | Gln | Ala | Ile | Leu | Pro | Ile | Arg | Gly | Lys | Ile |
| | | 450 | | | | 455 | | | | | 460 | | | | |
| Leu | Asn | Val | Glu | Lys | Ala | Arg | Leu | Gln | Lys | Ile | Phe | Gln | Asn | Gln | Glu |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Ile | Gly | Thr | Ile | Ile | Ala | Ala | Leu | Gly | Cys | Gly | Ile | Gly | Ala | Asp | Asn |
| | | | | 485 | | | | | 490 | | | | | 495 | |

Phe Asn Leu Ser Lys Leu Arg Tyr Arg Arg Ile Ile Ile Met Thr Asp
 500 505 510
 Ala Asp Val Asp Gly Ser His Ile Arg Thr Leu Leu Leu Thr Phe Phe
 515 520 525
 Tyr Arg His Met Thr Ala Leu Ile Glu Asn Glu Cys Val Tyr Ile Ala
 530 535 540
 Gln Pro Pro Leu Tyr Lys Val Ser Lys Lys Lys Asp Phe Arg Tyr Ile
 545 550 555 560
 Leu Ser Glu Lys Glu Met Asp Ser Tyr Leu Leu Met Leu Gly Thr Asn
 565 570 575
 Glu Ser Ser Ile Leu Phe Lys Ser Thr Glu Arg Glu Leu Arg Gly Glu
 580 585 590
 Ala Leu Glu Ser Phe Ile Asn Val Ile Leu Asp Val Glu Ser Phe Ile
 595 600 605
 Asn Thr Leu Glu Lys Lys Ala Ile Pro Phe Ser Glu Phe Leu Glu Met
 610 615 620
 Tyr Lys Glu Gly Ile Gly Tyr Pro Leu Tyr Tyr Leu Ala Pro Ala Thr
 625 630 635 640
 Gly Met Gln Gly Gly Arg Tyr Leu Tyr Ser Asp Glu Glu Lys Glu Glu
 645 650 655
 Ala Leu Ala Gln Glu Glu Thr His Lys Phe Lys Ile Ile Glu Leu Tyr
 660 665 670
 Lys Val Ala Val Phe Val Asp Ile Gln Asn Gln Leu Lys Glu Tyr Gly
 675 680 685
 Leu Asp Ile Ser Ser Tyr Leu Ile Pro Gln Lys Asn Glu Ile Val Ile
 690 695 700
 Gly Asn Glu Asp Ser Pro Ser Cys Asn Tyr Ser Cys Tyr Thr Leu Glu
 705 710 715 720
 Glu Val Ile Asn Tyr Leu Lys Asn Leu Gly Arg Lys Gly Ile Glu Ile
 725 730 735
 Gln Arg Tyr Lys Gly Leu Gly Glu Met Asn Ala Asp Gln Leu Trp Asp
 740 745 750
 Thr Thr Met Asn Pro Glu Gln Arg Thr Leu Ile His Val Ser Leu Lys
 755 760 765
 Asp Ala Val Glu Ala Asp His Ile Phe Thr Met Leu Met Gly Glu Glu
 770 775 780
 Val Pro Pro Arg Arg Glu Phe Ile Glu Ser His Ala Leu Ser Ile Arg
 785 790 795 800
 Ile Asn Asn Leu Asp Ile
 805

<210> 278

<211> 116

<212> PRT

<213> Chlamydia pneumoniae

<400> 278

Asp Met Phe Leu Lys Arg Lys Lys Arg Gly Gly Ser Gln Val Gln Asn
 1 5 10 15
 Lys Arg Thr Ala Ser Pro Ile Lys His Ala Lys His Tyr Leu His Asn
 20 25 30
 Tyr Leu Gln Glu Leu Gln Lys Ile Met Ala Ala Arg Pro His Asp Ala
 35 40 45
 Ile Asp Ala Trp Asn Gln Val Phe Arg Asp Lys Tyr Lys Gly Met Ser
 50 55 60
 Gln Ala Ile Gly Phe Arg Asp His Ile Leu Leu Val Lys Val Tyr Asn
 65 70 75 80
 Ser Ser Leu Tyr Ala Leu Leu Lys Gln Thr Pro Gln Asn Asp Leu Ile
 85 90 95
 Met Ser Leu Tyr Gln Val Ala Ser His Val Gln Ile Arg Glu Ile Gln
 100 105 110

Phe Leu Leu Gly
115

<210> 279
<211> 200
<212> PRT
<213> Chlamydia pneumoniae

<400> 279
Asn Ile Ser Ile Phe Tyr Pro Lys Tyr Phe Ile Glu Gly Lys Glu Val
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Leu Ile Lys Asn Leu Pro Pro Leu Ile Phe Tyr Gly Val Ile Leu Met
20 25 30
Ile Ile Asn Val Arg Ala Pro Ala Phe Gly Ile Thr Ser Val Gln Gln
35 40 45
Phe Ser Thr Asn Phe Gln Ala Ala Ile Pro Ile Leu Asn Ile Val Ile
50 55 60
Gly Cys Ser Arg Ile Ser Ser Thr Tyr Ala Glu Asp Ile Glu Glu Val
65 70 75 80
Ala Gln Glu Lys Leu Glu Lys Ser Thr His Ser Lys Ser Ser Thr Ser
85 90 95
Val Asn Leu Trp Ala His Arg Val Arg Gly Val Val Glu Ile Leu Gly
100 105 110
Gly Gly Ile Val Ile Leu Ala Leu Glu Ile Thr Ala Leu Val Leu Gln
115 120 125
Val Ile Ile Lys Leu Ile Lys Cys Leu Ile Asp Val Leu Cys Val Cys
130 135 140
Leu Phe Gly Leu Gly Val Cys Val Val Ala Ile Ile Gly Ala Ile Ala
145 150 155 160
Phe Cys Val Val Val Val Val Lys Tyr Leu Gly Phe Cys Ser Gln Gly
165 170 175
Glu Glu Leu Glu Pro Ile Glu Val Lys Thr Leu Ile Ser Pro Asp Lys
180 185 190
Pro Tyr Pro Thr Val Val Tyr Val
195 200

<210> 280
<211> 275
<212> PRT
<213> Chlamydia pneumoniae

<400> 280
Arg Asp Ser Met Lys Lys Lys Leu Ser Leu Leu Val Gly Leu Ile Phe
1 5 10 15
Val Leu Ser Ser Cys His Lys Glu Asp Ala Gln Asn Lys Ile Arg Ile
20 25 30
Val Ala Ser Pro Thr Pro His Ala Glu Leu Leu Glu Ser Leu Gln Glu
35 40 45
Glu Ala Lys Asp Leu Gly Ile Lys Leu Lys Ile Leu Pro Val Asp Asp
50 55 60
Tyr Arg Ile Pro Asn Arg Leu Leu Leu Asp Lys Gln Val Asp Ala Asn
65 70 75 80
Tyr Phe Gln His Gln Ala Phe Leu Asp Asp Glu Cys Glu Arg Tyr Asp
85 90 95
Cys Lys Gly Glu Leu Val Val Ile Ala Lys Val His Leu Glu Pro Gln
100 105 110
Ala Ile Tyr Ser Lys Lys His Ser Ser Leu Glu Arg Leu Lys Ser Gln
115 120 125
Lys Lys Leu Thr Ile Ala Ile Pro Val Asp Arg Thr Asn Ala Gln Arg
130 135 140

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Leu | His | Leu | Leu | Glu | Glu | Cys | Gly | Leu | Ile | Val | Cys | Lys | Gly | Pro |
| 145 | | | | | 150 | | | | 155 | | | | | | 160 |
| Ala | Asn | Leu | Asn | Met | Thr | Ala | Lys | Asp | Val | Cys | Gly | Lys | Glu | Asn | Arg |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Ser | Ile | Asn | Ile | Leu | Glu | Val | Ser | Ala | Pro | Leu | Leu | Val | Gly | Ser | Leu |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Pro | Asp | Val | Asp | Ala | Ala | Val | Ile | Pro | Gly | Asn | Phe | Ala | Ile | Ala | Ala |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Asn | Leu | Ser | Pro | Lys | Lys | Asp | Ser | Leu | Cys | Leu | Glu | Asp | Leu | Ser | Val |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ser | Lys | Tyr | Thr | Asn | Leu | Val | Val | Ile | Arg | Ser | Glu | Asp | Val | Gly | Ser |
| 225 | | | | 230 | | | | | | 235 | | | | | 240 |
| Pro | Lys | Met | Ile | Lys | Leu | Gln | Lys | Leu | Phe | Gln | Ser | Pro | Ser | Val | Gln |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| His | Phe | Phe | Asp | Thr | Lys | Tyr | His | Gly | Asn | Ile | Leu | Thr | Met | Thr | Gln |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Asp | Asn | Gly | | | | | | | | | | | | | |
| | | 275 | | | | | | | | | | | | | |

<210> 281
 <211> 224
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 281 | | | | | | | | | | | | | | | |
| Lys | Lys | Ile | Met | Gln | Ser | Asp | Leu | Ile | Gln | Ile | Leu | Leu | Lys | Glu | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Asn | Thr | Leu | Tyr | Met | Val | Ser | Thr | Ala | Phe | Phe | Phe | Ser | Cys | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ile | Gly | Gly | Met | Leu | Gly | Leu | Gly | Leu | Phe | Cys | Thr | Ser | Pro | Lys | Ser |
| | 35 | | | | | 40 | | | | | | 45 | | | |
| Leu | Asn | Pro | Lys | Lys | Ser | Leu | Tyr | Ala | Thr | Ile | Ser | Met | Ile | Leu | Ser |
| | 50 | | | | 55 | | | | | | 60 | | | | |
| Phe | Leu | Thr | Ala | Ile | Pro | Phe | Ala | Ile | Leu | Ile | Val | Ile | Leu | Phe | Pro |
| 65 | | | | 70 | | | | | | 75 | | | | 80 | |
| Ile | Thr | Arg | Trp | Ile | Val | Gly | Thr | Ser | Leu | Gly | Pro | Thr | Ala | Ser | Ile |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Val | Pro | Leu | Thr | Ile | Gly | Ala | Ile | Pro | Phe | Val | Val | Thr | Ile | Val | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asp | Ala | Phe | Arg | Asn | Ser | Ala | Leu | Asn | Tyr | Leu | Glu | Ser | Ala | Val | Ala |
| | 115 | | | | | 120 | | | | | 125 | | | | |
| Leu | Gly | Ile | Pro | Lys | Arg | Asn | Ile | Leu | Phe | Gly | Ile | Leu | Leu | Pro | Glu |
| | 130 | | | | 135 | | | | | 140 | | | | | |
| Ser | Tyr | Pro | Gln | Leu | Ile | Phe | Ser | Leu | Lys | Ser | Leu | Val | Val | His | Leu |
| 145 | | | | 150 | | | | | 155 | | | | | | 160 |
| Ile | Ser | Cys | Ser | Thr | Leu | Ala | Gly | Phe | Val | Gly | Gly | Gly | Gly | Leu | Gly |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Gln | Leu | Leu | Leu | Gln | Tyr | Gly | Tyr | Tyr | Arg | Phe | Glu | Trp | Ser | Val | Thr |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Thr | Ser | Val | Leu | Val | Ile | Thr | Leu | Val | Leu | Ile | Glu | Ser | Val | Arg | Ile |
| | 195 | | | | | 200 | | | | | 205 | | | | |
| Leu | Gly | Asp | Phe | Trp | Gly | Arg | Arg | Val | Leu | Lys | Tyr | Arg | Gly | Ile | Leu |
| | 210 | | | | 215 | | | | | | 220 | | | | |

<210> 282
 <211> 348
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 282

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Lys | Gly | Glu | Ala | Trp | Leu | Val | Ser | Glu | Gln | His | Ser | Pro | Ile | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Val | Gln | Asp | Val | Ser | Lys | Lys | Leu | Gly | Asp | His | Ile | Leu | Leu | Ser |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Lys | Val | Ser | Phe | Ser | Val | Tyr | Pro | Gly | Glu | Val | Phe | Gly | Ile | Val | Gly |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| His | Ser | Gly | Ser | Gly | Lys | Thr | Leu | Leu | Arg | Cys | Leu | Asp | Phe | Leu | |
| | 50 | | | | 55 | | | | | 60 | | | | | |
| Asp | Met | Pro | Thr | Ser | Gly | Ser | Ile | Ser | Val | Ala | Gly | Phe | Asp | Asn | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Leu | Pro | Thr | Gln | Lys | Phe | Ser | Arg | Arg | Asn | Phe | Ser | Lys | Lys | Val | Ala |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Tyr | Ile | Ser | Gln | Asn | Tyr | Gly | Leu | Phe | Ser | Ser | Lys | Thr | Val | Phe | Glu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asn | Ile | Ala | Tyr | Pro | Leu | Arg | Ile | His | His | Ser | Glu | Met | Ser | Lys | Ser |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Glu | Val | Glu | Glu | Gln | Val | Tyr | Asp | Thr | Leu | Asn | Phe | Leu | Asn | Leu | Tyr |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| His | Arg | His | Asp | Ala | Tyr | Pro | Gly | Asn | Leu | Ser | Gly | Gly | Gln | Lys | Gln |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | |
| Lys | Val | Ala | Ile | Ala | Arg | Ala | Ile | Val | Cys | Gln | Pro | Glu | Val | Val | Leu |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Cys | Asp | Glu | Ile | Thr | Ser | Ala | Leu | Asp | Pro | Lys | Ser | Thr | Glu | Asn | Ile |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ile | Glu | Arg | Leu | Leu | Gln | Leu | Asn | Gln | Glu | Arg | Gly | Ile | Thr | Leu | Val |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Leu | Val | Ser | His | Glu | Ile | Asp | Val | Val | Lys | Lys | Ile | Cys | Ser | His | Val |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Val | Met | His | Gln | Gly | Ala | Val | Glu | Glu | Leu | Gly | Thr | Thr | Glu | Glu |
| 225 | | | | | 230 | | | | | 235 | | | | 240 | |
| Leu | Phe | Leu | Asn | Ser | Glu | Asn | Ser | Ile | Thr | Asn | Glu | Leu | Phe | His | Glu |
| | | | 245 | | | | | 250 | | | | | | 255 | |
| Asp | Ile | Asn | Ile | Ala | Ala | Leu | Ser | Ser | Cys | Tyr | Phe | Ala | Glu | Asp | Arg |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Glu | Glu | Val | Leu | Arg | Leu | Asn | Phe | Ser | Lys | Glu | Leu | Ala | Ile | Gln | Gly |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ile | Ile | Ser | Lys | Val | Ile | Gln | Thr | Gly | Leu | Val | Ser | Ile | Asn | Ile | Leu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ser | Gly | Asn | Ile | Asn | Leu | Phe | Arg | Lys | Ser | Pro | Met | Gly | Phe | Leu | Ile |
| 305 | | | | | 310 | | | | | 315 | | | | 320 | |
| Ile | Val | Leu | Glu | Gly | Glu | Val | Glu | Gln | Arg | Lys | Lys | Ala | Lys | Glu | Leu |
| | | | 325 | | | | | 330 | | | | | | 335 | |
| Leu | Ile | Glu | Leu | Gly | Val | Val | Ile | Lys | Glu | Phe | Tyr | | | | |
| | | 340 | | | | | | 345 | | | | | | | |

<210> 283

<211> 357

<212> PRT

<213> Chlamydia pneumoniae

<400> 283

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Ser | Leu | Arg | His | Thr | Leu | Met | Leu | Asn | Ile | His | Asp | Ile | Leu | |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |
| Gly | Asn | Asp | Asp | Glu | Asn | Leu | Leu | Ser | Tyr | Gln | Cys | Lys | His | Ile | Thr |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Lys | Asp | Lys | Leu | Thr | Leu | Pro | Ser | His | Asp | Phe | Val | Asp | Lys | Val | Phe |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gly | Leu | Ser | Asp | Arg | Asn | Asn | Arg | Val | Leu | Arg | Ser | Leu | Gln | Thr | Met |
| | 50 | | | | | 55 | | | | | 60 | | | | |

Phe Ser His Gly Arg Leu Ala Asn Ser Gly Tyr Leu Ser Ile Leu Pro
 65 70 75 80
 Val Asp Gln Gly Ile Glu His Ser Ala Gly Ala Ser Phe Ala Ile Asn
 85 90 95
 Pro Ile Tyr Phe Asp Pro Glu Asn Ile Val Lys Leu Ala Ile Glu Ser
 100 105 110
 Gly Cys Ser Ala Val Ala Ser Thr Tyr Gly Thr Leu Ser Leu Leu Ser
 115 120 125
 Arg Lys Tyr Ala His Lys Ile Pro Phe Met Leu Lys Leu Asn His Asn
 130 135 140
 Glu Leu Leu Ser Tyr Pro Thr Lys Tyr His Gln Ile Phe Phe Thr Gln
 145 150 155 160
 Val Glu Ala Ala Tyr Ser Met Gly Ala Val Ala Val Gly Ala Thr Val
 165 170 175
 Tyr Phe Gly Ser Glu Thr Ser Asn Glu Ile Val Ala Val Ser Asn
 180 185 190
 Ala Phe Ala Lys Ala Arg Ser Leu Gly Leu Ala Thr Val Leu Trp Cys
 195 200 205
 Tyr Leu Arg Asn Pro Ala Phe Val Ala Asn Gly Val Asp Tyr His Thr
 210 215 220
 Ala Ala Asp Leu Thr Gly Gln Ala Asp His Leu Gly Ala Thr Leu Gly
 225 230 235 240
 Ala Asp Ile Val Lys Gln Lys Leu Pro Thr Cys Gln Gly Gly Phe Lys
 245 250 255
 Ala Ile Asn Phe Gly Lys Thr Asp Glu Arg Val Tyr Ser Glu Leu Ser
 260 265 270
 Ser Asn His Pro Ile Asp Leu Cys Arg Tyr Gln Val Leu Asn Ser Tyr
 275 280 285
 Cys Gly Lys Val Gly Leu Ile Asn Ser Gly Gly Pro Ser Gly Lys Asn
 290 295 300
 Asp Phe Thr Glu Ala Ala Arg Thr Ala Val Ile Asn Lys Arg Ala Gly
 305 310 315 320
 Gly Met Gly Leu Ile Leu Gly Arg Lys Ala Phe Gln Arg Pro Leu Ser
 325 330 335
 Glu Gly Ile Gln Leu Leu Asn Leu Val Gln Asp Ile Tyr Leu Asp Pro
 340 345 350
 Asn Ile Thr Ile Ala
 355

<210> 284
 <211> 482
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 284
 Ile Leu Ile Leu Gln Ser Leu Asn Phe Ser Lys Lys Val Phe Met His
 1 5 10 15
 Ser His Ser Lys Pro Thr Lys Pro Leu Gly Thr Phe Thr Val Gly Met
 20 25 30
 Leu Ser Leu Ala Val Val Ile Ser Leu Arg Asn Leu Pro Leu Thr Ala
 35 40 45
 Lys His Gly Leu Ser Thr Leu Phe Phe Tyr Gly Leu Ala Val Ile Cys
 50 55 60
 Phe Met Ile Pro Tyr Ala Leu Ile Ser Ala Glu Leu Ala Ser Phe Lys
 65 70 75 80
 Pro Gln Gly Ile Tyr Ile Trp Ala Arg Asp Ala Leu Gly Lys Trp Trp
 85 90 95
 Gly Phe Phe Ala Ile Trp Met Gln Trp Phe His Asn Met Thr Trp Tyr
 100 105 110
 Pro Ala Val Leu Ala Phe Ile Ala Ser Thr Ile Val Tyr Lys Ile Asn
 115 120 125

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Val | Leu | Phe | Ser | Leu | Asp | Pro | Met | Trp | Leu | Lys | Ser | Met | Leu | Asp |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Pro | Lys | Lys | His | Ser | Thr | Leu | Gly | Ile | Glu | Ile | Ser | Ser | Glu | Thr | Ala |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Glu | Thr | Ile | Glu | Ser | Cys | Ser | Leu | Gly | Leu | Ile | Ser | Ile | Asn | Leu | Leu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Ser | Gly | Leu | Cys | Leu | Arg | Ser | Ser | His | Asp | Arg | Ser | Gln | Ala | Val |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Lys | Ile | Ile | Gln | Gln | Phe | Cys | Pro | Gln | Phe | Ser | Ser | Glu | Glu | Val | Gln |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asn | Phe | Val | Glu | Gln | Arg | Asn | Ile | Leu | Thr | Pro | Phe | Leu | His | His | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Phe | Glu | Gly | Asp | Glu | Val | Ala | Leu | Leu | Asn | Gln | Leu | Ser | Leu | Arg | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Asp | Leu | Ile | Val | Pro | Asn | Ala | Leu | Tyr | Pro | Glu | Pro | Asp | Pro | Ser | Cys |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Trp | Gln | Ser | Ile | Asn | Ser | Glu | Asp | Cys | Ala | Lys | Asp | Ala | Glu | Asp | Gln |
| | | 195 | | | | 200 | | | | | | 205 | | | |
| Gln | Glu | Asp | Phe | Asn | Lys | Thr | Lys | Glu | Ala | Cys | Lys | Glu | Gly | Leu | Lys |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Lys | Leu | Val | Leu | Pro | Ala | Leu | Ser | Ile | Thr | Ser | Ile | Pro | Gln | Leu | Leu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Arg | Ala | Arg | Arg | Phe | Lys | Gln | Gly | Ala | Glu | Ile | Leu | Met | Ala | Ile | Asp |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Arg | Lys | Lys | Met | Lys | Gln | Asn | Pro | Phe | Ile | Phe | Leu | Glu | Ala | Leu | Leu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Glu | Ser | Glu | Glu | Phe | Ser | Ile | Ser | Val | Gly | Lys | Tyr | Leu | Lys | Leu | Leu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Met | Pro | Ile | His | Leu | Trp | Asp | Lys | Leu | Leu | His | Ala | Ile | Tyr | Leu | Gly |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Tyr | Phe | Gln | Thr | Gly | Leu | Ile | Cys | Gln | Gly | Glu | Ile | Glu | Thr | Phe | Cys |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Arg | Arg | Ala | Asn | Leu | Asn | Pro | Glu | Ala | Phe | Gln | Ala | Ala | Ile | Gln | Gln |
| | | | 325 | | | | | | 330 | | | | | 335 | |
| Gly | Arg | Leu | Leu | Ser | Phe | Leu | Phe | Pro | Lys | Met | Leu | Leu | Asp | | |
| | | 340 | | | | | | 345 | | | | | 350 | | |

<210> 286

<211> 168

<212> PRT

<213> Chlamydia pneumoniae

<400> 286

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Leu | Asp | Met | Asn | Ile | Pro | Ala | Pro | Gln | Val | Pro | Val | Ile | Asp | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Pro | Val | Val | Asn | Asn | Thr | Ser | Ser | Tyr | Gly | Leu | Ser | Leu | Lys | Ser | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Arg | Pro | Ile | Thr | Tyr | Leu | Ile | Leu | Ala | Ile | Leu | Ala | Ile | Ala | Thr |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Leu | Met | Ser | Val | Leu | Tyr | Phe | Cys | Gly | Ile | Ile | Ser | Val | Gly | Thr | Phe |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Val | Leu | Gly | Met | Leu | Ile | Pro | Leu | Ser | Val | Cys | Ser | Val | Leu | Cys | Val |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ala | Tyr | Leu | Phe | Tyr | Gln | Gln | Ser | Ser | Ile | Glu | Lys | Thr | Lys | Val | Phe |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ser | Ile | Thr | Ser | Pro | Ser | Val | Phe | Phe | Ser | Asp | Glu | Asp | Leu | Asn | Leu |
| | | | 100 | | | | 105 | | | | | | 110 | | |
| Leu | Leu | Gly | Arg | Glu | Glu | Asp | Ser | Val | Ser | Ala | Ile | Asp | Glu | Leu | Leu |
| | | 115 | | | | 120 | | | | | | 125 | | | |
| Lys | Asn | Phe | Pro | Ala | Asp | Asp | Phe | Arg | Arg | Pro | Lys | Met | Leu | Pro | Tyr |
| | 130 | | | | | 135 | | | | | 140 | | | | |

Ser Asn Phe Leu Asp Glu Gln Gly Arg Pro Asn Glu Ser Arg Glu Glu
 145 150 155 160
 Asp Ser His Thr Ser Lys Ile Leu
 165

<210> 287
 <211> 517
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 287
 Lys Glu Leu Phe Asn Leu Phe Phe Phe Thr Ala Asn Lys Glu Thr Thr
 1 5 10 15
 Ala Ser His Glu Leu Ile Tyr Arg Lys Asn Gln Ser Phe Ser Leu Ser
 20 25 30
 Pro Val Thr Ile Leu Cys Leu Leu Ala Ile Ser Val Leu Leu Leu Leu
 35 40 45
 Gly Val Val Phe Ala Leu Val Gly Cys His Val Leu Ala Ala Pro Leu
 50 55 60
 Gly Leu Leu Val Trp Gly Cys Ala Ala Ser Val Cys Ser Met Met Ala
 65 70 75 80
 Ile Val Ser Leu Met Cys Leu Tyr Lys Gly Gly Lys Pro Leu Ile Glu
 85 90 95
 Pro Ser Asn Glu Glu Lys Ile Asp Pro Thr Lys Asp Leu Glu Ile Lys
 100 105 110
 Asp Pro Glu Ser Leu Lys Pro Val Pro Val Glu Gly Gln Ser Leu Pro
 115 120 125
 Lys Glu Arg Lys Thr Val Ser Phe Lys Ala Lys Ile Pro Ser Ile Val
 130 135 140
 Glu Asp Asp Phe Lys Pro Tyr Val Ile Gln Ser Thr Phe Tyr His Gln
 145 150 155 160
 Asn Lys Val Tyr Ser Lys Pro Ile Ala Glu Arg Met Gln Ser Leu Glu
 165 170 175
 Lys Glu Ile Thr Thr Leu Ile Val Asp Phe Pro Arg Ala Leu Glu Glu
 180 185 190
 Ser Ser Lys Ser Ser Gly Ser Leu Leu Arg Gly Val Ile Ser Glu Ile
 195 200 205
 Lys Asn Leu Phe Leu Pro Arg Phe Leu Ser Arg Lys Val Lys Tyr Ser
 210 215 220
 Leu Thr Ala Cys Leu Arg Arg Leu Gly Ser Ile Val Glu Glu Tyr Ala
 225 230 235 240
 Ser Ser Asp Leu Leu Ile Leu Leu Leu Thr Lys Pro Glu Pro Leu Asn
 245 250 255
 Met Val Thr Gln Gln Leu Ile Ala His Leu Asn Ser Leu Lys Thr Glu
 260 265 270
 Lys Arg Lys Leu Thr Pro His Met Gln Lys Leu Val Leu Ser Ile Asn
 275 280 285
 Phe Trp Phe Tyr Gly Trp Ser Leu Glu Glu Lys Cys Ile Glu Lys Ile
 290 295 300
 Val Ala Tyr Asp Pro Asn Leu Leu Thr Asp Glu Leu Lys Ala His Leu
 305 310 315 320
 Glu Ala Gly Asn Ile Val Gln Phe Leu Leu Ser Phe Gln Ser Ser Glu
 325 330 335
 Met Gln Arg Glu Phe Arg Ala Leu Phe Pro Ser Asp Ala Gln Glu Leu
 340 345 350
 Pro Ser Ala Lys Asp Gly Ser Asn Tyr Val Pro Ala Ile Asn Ser Ser
 355 360 365
 Glu Tyr Met Tyr Asp Phe Lys Asp Leu Ser Val Leu Lys Lys Ser Leu
 370 375 380
 Ser Glu Arg Leu Ala Phe Cys Glu Lys Ile Pro Ser Pro Ser Ser Trp
 385 390 395 400

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Phe | Thr | Ser | Ser | Val | Ala | Ser | His | Tyr | Lys | Asp | Phe | Ser | Leu | Leu |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Phe | Thr | Phe | Phe | Ser | Asn | Gln | Gln | Ser | Val | Ile | Leu | Gln | Asn | Pro | Phe |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Leu | Leu | Ile | Glu | Leu | Leu | His | Glu | Asn | Pro | Lys | Cys | Gln | Thr | Phe | Leu |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Lys | Gly | Leu | Leu | Glu | Lys | Ala | Met | Pro | Met | Ser | Asn | Trp | Ala | Ala | Leu |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Phe | Arg | Pro | Met | Leu | Met | Gly | Met | Leu | Cys | Ser | Gly | Ile | Ala | Arg | Lys |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Lys | Glu | Leu | Lys | Ile | Ile | Ala | Glu | His | Leu | Gly | Val | Pro | Phe | Lys | Glu |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Ile | Thr | Gln | Ala | Ile | Ala | Ser | Gly | Lys | Ile | Leu | Asp | Leu | Leu | Leu | Gln |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| His | Leu | Phe | Asp | Phe | | | | | | | | | | | |
| | | | 515 | | | | | | | | | | | | |

<210> 288

<211> 500

<212> PRT

<213> Chlamydia pneumoniae

<400> 288

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Cys | Arg | Glu | Ser | Lys | Gly | Lys | Ile | Met | Val | Gly | Glu | Gln | Asn | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Asn | Glu | Glu | Lys | Leu | Asp | Thr | Ala | Phe | Ser | Ser | Gly | Asn | Leu | Met | Asp |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ser | Arg | Thr | Ser | His | Leu | Asp | Asp | Glu | Leu | Ser | Phe | Lys | Leu | Glu | Lys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ala | Phe | Thr | Cys | Leu | Ser | Thr | Asp | Ile | His | Ser | His | Asp | Leu | Ser | Lys |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Val | Ile | Glu | Tyr | Asn | Pro | Ile | Asp | Leu | Ala | Tyr | Ala | Val | Ser | Cys |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 |
| Leu | Pro | Ser | Glu | Ser | Arg | Ala | Ile | Leu | Tyr | Lys | Asn | Leu | Ser | Cys | Ile |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Thr | Ala | Lys | Val | Ala | Phe | Ile | Ile | Asn | Thr | Asp | Ser | Ala | Ser | Arg | Trp |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ala | Ile | Phe | Arg | Arg | Leu | Ser | Asp | Ser | Glu | Val | Cys | Ala | Leu | Ile | Glu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gln | Met | Pro | Pro | Asp | Glu | Ala | Val | Trp | Val | Leu | Asp | Asp | Ile | Pro | Asp |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Arg | Arg | Tyr | Arg | Arg | Ile | Leu | Glu | Leu | Ile | Asp | Ser | Lys | Lys | Ala | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Lys | Ile | Arg | Asp | Leu | Gln | Lys | His | Gly | Arg | Asn | Thr | Ala | Gly | Arg | Leu |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Met | Thr | Asn | Glu | Phe | Phe | Ala | Phe | Leu | Met | Glu | Thr | Thr | Val | Lys | Asp |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Val | Ser | Ala | Cys | Ile | Arg | Ser | Asn | Pro | Gly | Ile | Asp | Leu | Thr | Arg | Leu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Val | Phe | Val | Leu | Asp | Phe | Lys | Gly | Glu | Leu | Gln | Gly | Val | Val | Thr | Asp |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Arg | Ser | Leu | Ile | Ile | Asn | Pro | Pro | Glu | Met | Ser | Leu | Lys | Gln | Ile | Met |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Asn | Gln | Ile | Glu | His | Lys | Val | Leu | Pro | Asp | Ala | Thr | Arg | Glu | Glu | Val |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Val | Asp | Leu | Val | Glu | Arg | Tyr | Lys | Ile | Ala | Ala | Leu | Pro | Val | Val | Asp |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Glu | Glu | Asn | Phe | Leu | Ile | Gly | Ala | Ile | Thr | Tyr | Glu | Asp | Val | Val | Glu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ala | Ile | Glu | Asp | Ile | Ala | Asp | Glu | Thr | Ile | Ala | Arg | Met | Ala | Gly | Thr |
| | 290 | | | | | | 295 | | | | | 300 | | | |

Thr Glu Asp Val Gly Tyr Gln Thr Cys His Val Val Gln Arg Phe Leu
 305 310 315 320
 Leu Arg Ala Pro Trp Leu Leu Val Thr Leu Phe Ala Gly Leu Ile Ser
 325 330 335
 Ala Ser Val Met Ala Tyr Phe Gln Lys Ile Ser Pro Ala Leu Leu Ala
 340 345 350
 Leu Ile Ile Phe Phe Ile Pro Leu Ile Asn Gly Met Ser Gly Asn Val
 355 360 365
 Gly Val Gln Cys Ser Thr Ile Leu Val Arg Ser Met Ala Thr Gly Thr
 370 375 380
 Leu Ser Phe Gly Arg Arg Arg Glu Thr Ile Phe Lys Glu Met Ser Ile
 385 390 395 400
 Gly Leu Leu Thr Gly Val Val Leu Gly Ile Leu Cys Gly Leu Val Val
 405 410 415
 Tyr Leu Met Gly Phe Leu Gly Leu Asn Ile Phe Ser Gly Gly Gly Ile
 420 425 430
 Gln Leu Gly Val Thr Val Ala Thr Gly Val Leu Gly Ala Ser Leu Thr
 435 440 445
 Ala Thr Thr Leu Gly Val Leu Ser Pro Phe Phe Phe Ala Lys Leu Gly
 450 455 460
 Val Asp Pro Ala Leu Ala Ser Gly Pro Ile Val Thr Ala Leu Asn Asp
 465 470 475 480
 Ile Met Ser Met Ile Ile Phe Phe Leu Ile Ala Gly Gly Ile Asn Phe
 485 490 495
 Leu Phe Phe Asn
 500

<210> 289

<211> 714

<212> PRT

<213> Chlamydia pneumoniae

<400> 289

Arg Arg Cys Met Ile Arg Ser Pro Leu Pro Phe Ile Ser Ser Lys Arg
 1 5 10 15
 Ala Leu Asn Met Leu Gly Leu Gln Asp Glu Phe Ser Cys Pro Glu Asp
 20 25 30
 Val Val Asp Phe Leu Phe Ser Glu Ile Glu Leu Leu Ala Gln Gln Asp
 35 40 45
 Glu Pro Ser Glu Gly Tyr Leu Ala Leu Ser Arg Ser Leu Leu Met Met
 50 55 60
 Thr His Asn His Pro Lys Val Val Lys Arg Val Ile Phe Tyr Gly Val
 65 70 75 80
 Ser Tyr Gly Leu Lys His Lys Ser Met Ser Ile Phe Ile Asp Val Leu
 85 90 95
 Thr Tyr Ile Asp Phe Leu Phe Glu Lys Leu Gly Ile Ser Ala Ser Asp
 100 105 110
 Arg Leu Ser Leu Cys Ser Ala Arg Thr Cys Ile Asn Phe Glu Leu Tyr
 115 120 125
 Ser Gln Thr Gly Glu Met Lys Phe Leu Ser Glu Val Val Asp Asn Phe
 130 135 140
 Arg Leu Ile Glu Gln Leu Leu Lys Met His Pro Gln Leu Lys Asn Arg
 145 150 155 160
 Leu Gly Trp Glu His Phe Arg Ile Gly Ala Lys Gln Glu Glu Val Ser
 165 170 175
 Leu Val Ala Ser Ala Ser Val Tyr Gln Ala Val Gly Arg Ser Phe Ile
 180 185 190
 Glu Leu Tyr His Lys His Leu Glu Leu Ser Asp Leu Ala Cys Gly Met
 195 200 205
 Lys Cys Leu Ala Leu Ala Leu Asp Leu Ser Pro Asn Asn Ala His Ile
 210 215 220

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Ala | Asp | Tyr | Ala | Lys | Gly | Leu | Val | Val | Leu | Gly | Thr | Arg | Gln | Gly |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Lys | Ser | Leu | Leu | Ile | Glu | Arg | Gly | Met | Glu | His | Phe | Ser | Lys | Ala | Ile |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Phe | Leu | Ser | Phe | Ser | Arg | Asp | Gly | Asp | Thr | Leu | Ala | Tyr | Gln | Asn | Tyr |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Arg | Tyr | Ser | Tyr | Ala | Leu | Ala | Ser | Val | Lys | Leu | Phe | Asp | Leu | Thr | Tyr |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Lys | Lys | Glu | His | Phe | Asp | Gln | Ala | Met | Asn | Ile | Leu | Tyr | Gln | Thr | Val |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Gln | Ala | Phe | Pro | Asn | Leu | Ser | Gly | Leu | Trp | Met | Val | Trp | Gly | Glu | Leu |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Leu | Ile | Arg | Ser | Gly | Trp | Leu | Asn | Ser | Asn | Met | Lys | Tyr | Ile | Glu | Val |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Gly | Leu | Glu | Lys | Leu | Ala | Ser | Leu | Gln | Lys | Lys | Thr | Asn | Asp | Pro | Ile |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ala | Leu | Ser | Gly | Leu | Leu | Ala | Thr | Gly | Ile | Ala | Ile | Leu | Gly | Leu | Tyr |
| | 355 | | | | | | 360 | | | | | 365 | | | |
| Leu | Glu | Glu | Pro | Asn | Leu | Phe | Lys | Asp | Ser | Arg | His | Arg | Leu | Ile | Ser |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Ala | Met | Arg | Thr | Phe | Pro | Gly | Asn | Ser | Ala | Leu | Val | His | Ala | Leu | Gly |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Val | Val | Gln | Leu | Cys | Ser | Ala | Leu | Tyr | Phe | Asn | Glu | Asp | Ser | His | Phe |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ala | Ser | Ala | Ile | Ser | Cys | Phe | Gln | Ser | Cys | Leu | Glu | Trp | Asp | Leu | Asp |
| | | 420 | | | | | 425 | | | | | 430 | | | |
| Ala | Thr | Gly | Met | Trp | Gln | Lys | Leu | Phe | Asp | Ala | Tyr | Phe | Ser | Trp | Gly |
| | 435 | | | | | 440 | | | | | | 445 | | | |
| Ile | Lys | Lys | Lys | Ser | Ala | Arg | Leu | Leu | Arg | Lys | Ala | Val | Asp | Val | Ala |
| | 450 | | | | 455 | | | | | | 460 | | | | |
| Ser | Arg | Leu | Cys | Ser | Leu | Arg | Pro | Glu | Ala | Phe | Leu | Phe | Trp | Ser | Asp |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Arg | Gly | Leu | Ala | Leu | Lys | Cys | Leu | Ala | Glu | Ala | Thr | Ile | Asp | Glu | Ala |
| | | | 485 | | | | | 490 | | | | | 495 | | |
| Tyr | Lys | Glu | Ile | Phe | Leu | Ser | Glu | Ser | Leu | Leu | His | Tyr | Gln | Arg | Ala |
| | | 500 | | | | | 505 | | | | | | 510 | | |
| Trp | Asp | Leu | Ser | Gly | Arg | Leu | Glu | Ile | Leu | Glu | Leu | Trp | Gly | Gln | Ser |
| | 515 | | | | | | 520 | | | | | 525 | | | |
| His | Tyr | Leu | Leu | Ala | Glu | Leu | Gln | Gln | Ser | Leu | Phe | His | Tyr | Asp | Glu |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Ala | Tyr | Thr | Leu | Leu | Thr | Lys | Val | Asp | Leu | Thr | Leu | Ser | Ser | Ser | Arg |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Val | Lys | Leu | Ile | Leu | Ala | Ala | Val | Leu | Leu | Gly | Lys | Gly | Arg | Leu | Leu |
| | | | 565 | | | | | 570 | | | | | | 575 | |
| Gln | Asp | Thr | Asp | Pro | Ala | Glu | Glu | Ala | Arg | Glu | Ile | Leu | Glu | Pro | Leu |
| | | 580 | | | | | | 585 | | | | | 590 | | |
| Val | Glu | Val | Tyr | Leu | Glu | Asp | Glu | Asn | Phe | Leu | Leu | Leu | Leu | Gly | Lys |
| | 595 | | | | | | 600 | | | | | 605 | | | |
| Val | Tyr | Leu | Phe | Leu | Phe | Trp | Lys | Asn | Lys | Asn | Val | Cys | Leu | Gly | Lys |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Leu | Ala | Arg | Thr | Tyr | Leu | Glu | Lys | Ala | Thr | Ser | Leu | Gly | Cys | Pro | Glu |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Ala | Tyr | Tyr | Thr | Leu | Gly | Lys | Phe | Tyr | Ala | Val | Ile | Lys | Asp | Val | Asn |
| | | | 645 | | | | | 650 | | | | | | 655 | |
| Lys | Ala | Trp | Gly | Met | Val | Ile | Arg | Ser | Ala | Gln | Tyr | Gly | Val | Arg | Ile |
| | | 660 | | | | | | 665 | | | | | 670 | | |
| Thr | Glu | Ala | Lys | Trp | Leu | Asn | Asp | Pro | Tyr | Leu | Ala | Asn | Leu | Arg | Glu |
| | 675 | | | | | | 680 | | | | | 685 | | | |
| Ile | His | Ala | Phe | Arg | Glu | Val | Val | Glu | Asn | Gln | Lys | Gly | Arg | Leu | Trp |
| | 690 | | | | | 695 | | | | | 700 | | | | |

Leu Gly Asn Lys Thr Glu Met Lys Arg Asn
705 710

<210> 290
<211> 405
<212> PRT
<213> Chlamydia pneumoniae

<400> 290
Ile Ser Ile Thr Ile Arg Glu Phe Leu Phe Phe Gly Phe Glu Cys Arg
1 5 10 15
Ala Lys Phe Tyr Asn Val Ile Met Ser Cys Phe Asn Leu Thr Ser Thr
20 25 30
Asn Glu Ser Leu Arg Pro Ile Ser Pro Lys Ala Ser Phe Pro Lys Gln
35 40 45
Gly Trp Gln Ser Tyr Phe Arg Ser Ala Leu Arg Lys His Arg Ser Asp
50 55 60
Thr Leu Ser Val Ser Val Cys Lys Val Asn Lys Tyr Asp Ala Asn Leu
65 70 75 80
Phe Val Arg Leu Thr Val Ile Ala Leu Ala Val Val Gly Val Leu Ile
85 90 95
Leu Phe Ser Ile Met Leu Ala Ser Ile Gln Gly Thr Leu Val Ile Thr
100 105 110
Ser Trp Pro Leu Val Thr Ala Ala Ile Leu Ile Pro Thr Ile Leu Leu
115 120 125
Thr Gly Gly Met Tyr Ile Leu His Arg Leu Gly Lys Lys Val Asp Val
130 135 140
Ile Ser Gly Val Cys Ile Pro Pro Phe Ser Arg Arg Cys Trp Val Pro
145 150 155 160
Ile Ser Ser Ser His Thr Leu Glu Lys Phe Asp Glu Lys His Val Ser
165 170 175
Ala Cys Ser Tyr Leu Asp Ile Ser Thr Leu Ser Ala Asp Gly Ser Gly
180 185 190
Ile Ala Ala Val Tyr Gln Cys Pro Pro Leu Leu Phe Arg Ala Phe Pro
195 200 205
Cys Phe Gly Ile Pro Cys Ala Met Pro Phe Val Ala Leu Leu Arg Met
210 215 220
Ile Tyr Asn Leu Ile Arg Phe Leu Val Val Pro Phe Tyr Ile Ile Phe
225 230 235 240
Arg Met Ile Tyr Glu His Phe Phe Cys Lys His Leu Pro Glu Asp Asp
245 250 255
Arg Phe Ile Tyr Lys Asp Val Ala Arg Glu Met Gly Arg Ser Leu Ala
260 265 270
Ala Phe Leu Lys Ala Pro Phe Tyr Ala Ser Ala Cys Met Ile Gly Ala
275 280 285
Phe Tyr Ser Leu Leu Asp Pro Leu Ala Gly Arg Val Leu Met Gly Ser
290 295 300
Val Glu Arg Asp Trp Asn Asp Asn Val Ile Leu Ala Arg Ser Val Ser
305 310 315 320
Leu Ala Asn Glu Ala His Ser Leu Phe Arg Phe Glu Gly Gly Gly Gly
325 330 335
Arg Lys Gly Leu Gly Gln His Ala Phe Tyr Leu Met Leu Cys Cys Gln
340 345 350
Pro Gln Ser Val Phe Leu Phe Asp Lys Gly Glu Ile Val Ser Gly Ala
355 360 365
His Pro Ser Ile Gln Leu Pro Glu Arg Arg Gly Leu Asp Thr Ser Gly
370 375 380
Arg Tyr Pro His Ile Ser Val Ile Pro Asp Ser Gly Asn Asp Ser Ala
385 390 395 400
Lys Asn Phe Ile Val
405

<210> 291
 <211> 400
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 291
 Asn Phe Asn Arg Leu Met Lys Lys Gln Arg Ser His Tyr Lys Lys Asn
 1 5 10 15
 Asn Leu Leu Leu Leu Leu Ser Ile Leu Val Gly Leu Gly Leu Gly Ser
 20 25 30
 Val Gln Ser Pro Trp Ile Val Tyr Ser Ala Glu Cys Ile Ala Asn Thr
 35 40 45
 Phe Leu Lys Phe Leu Arg Leu Ser Ile Pro Leu Val Phe Cys Ala
 50 55 60
 Leu Gly Ser Thr Ile Thr Ser Ile Gln Asn Phe Asn Thr Met Val Thr
 65 70 75 80
 Leu Gly Lys Arg Ile Leu Tyr Tyr Thr Leu Leu Thr Thr Val Ile Ala
 85 90 95
 Ala Ser Ile Gly Leu Leu Leu Phe Phe Leu Leu Arg Pro Gln Met Ile
 100 105 110
 Thr Gln Asp Ala Leu Ala Thr Thr Thr Lys Cys Asn Pro Leu Gly Tyr
 115 120 125
 Leu Asp Val Leu Ser Asp Thr Leu Pro Glu Asn Ile Phe Lys Pro Phe
 130 135 140
 Leu Gln Gly Asn Val Ile Ser Ala Ala Cys Leu Ala Val Leu Leu Gly
 145 150 155 160
 Thr Ala Ser Leu Phe Leu Gln Glu Lys Glu Lys His Phe Val Asn Gln
 165 170 175
 Phe Phe Asn Ser Phe Phe Ser Ile Phe Leu Asn Leu Ala Arg Gly Gly
 180 185 190
 Leu Lys Leu Leu Pro Ile Ala Met Leu Gly Phe Ser Val Ile Leu Phe
 195 200 205
 Lys Glu Leu Lys Asp Gln Ser Asn Leu Thr Met Phe Ala Glu Tyr Leu
 210 215 220
 Leu Cys Val Ile Gly Ala Asn Leu Ala Gln Gly Phe Ile Val Leu Pro
 225 230 235 240
 Ile Leu Leu Lys Ile Asn Lys Val Ser Pro Leu Lys Val Ala Lys Ala
 245 250 255
 Met Ser Pro Ala Leu Val Thr Ala Phe Phe Ser Lys Ser Ser Ala Ala
 260 265 270
 Thr Leu Pro Leu Thr Met Glu Leu Ala Glu Asp Asp Leu Lys Ile Asn
 275 280 285
 Lys Asn Leu Ser Arg Phe Ser Phe Pro Leu Cys Ser Val Ile Asn Met
 290 295 300
 Asn Gly Cys Ala Ala Phe Ile Leu Ile Thr Val Leu Phe Val Ala Thr
 305 310 315 320
 Ser Asn Gly Met Ile Ile Ser Pro Leu Met Ser Leu Gly Trp Ile Phe
 325 330 335
 Ile Ala Thr Leu Ala Ala Ile Gly Asn Ala Gly Val Pro Met Gly Cys
 340 345 350
 Tyr Phe Leu Thr Leu Ser Leu Leu Thr Ser Met Asn Val Pro Leu Ser
 355 360 365
 Ile Leu Gly Leu Ile Leu Pro Phe Tyr Thr Val Ile Asp Met Ile Glu
 370 375 380
 Thr Ser Leu Asn Val Trp Ser Asp Cys Cys Val Val Ser Leu Ala Asn
 385 390 395 400

<210> 292
 <211> 499
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 292

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Ser | Ala | Leu | Thr | Met | Asn | Lys | Lys | His | Ala | Ser | Phe | Ser | Ser | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Gly | Phe | Ile | Phe | Ser | Met | Ile | Gly | Ile | Ala | Val | Gly | Ala | Gly | Asn |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Ile | Trp | Arg | Phe | Pro | Arg | Val | Ala | Ala | Gln | Asn | Gly | Gly | Gly | Ala | Phe |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Leu | Ile | Leu | Trp | Leu | Cys | Phe | Leu | Phe | Leu | Trp | Ser | Ile | Pro | Leu | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Ile | Glu | Leu | Ser | Ile | Gly | Lys | Leu | Thr | Lys | Lys | Ala | Pro | Ile | Gly |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ala | Leu | Ile | Lys | Thr | Ala | Gly | Lys | Lys | Phe | Ala | Trp | Ala | Gly | Gly | Phe |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ile | Thr | Leu | Val | Thr | Thr | Cys | Ile | Leu | Ala | Tyr | Tyr | Ser | Thr | Ile | Val |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Gly | Trp | Gly | Leu | Ser | Tyr | Phe | Tyr | Tyr | Ala | Val | Ser | Gly | Lys | Ile | His |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Gly | Asn | Asp | Phe | Ala | Lys | Leu | Trp | Thr | Ser | His | Tyr | Gln | Ser | Ser |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ile | Pro | Leu | Trp | Ala | His | Leu | Thr | Ser | Leu | Gly | Leu | Ala | Tyr | Leu | Val |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ile | Arg | Lys | Gly | Ile | Val | His | Gly | Ile | Glu | Lys | Cys | Asn | Lys | Ile | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ile | Pro | Ala | Phe | Leu | Cys | Thr | Ile | Ala | Leu | Leu | Leu | Arg | Ala | Val | |
| | | 180 | | | | | 185 | | | | | 190 | | | |
| Thr | Leu | Pro | Gly | Ala | Val | Gln | Gly | Ile | Lys | Gln | Leu | Phe | Ser | Cys | Asp |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Lys | Ser | Cys | Phe | Ser | Asn | Tyr | Lys | Val | Trp | Ile | Glu | Ala | Leu | Thr | Gln |
| | 210 | | | | 215 | | | | | | 220 | | | | |
| Asn | Ala | Trp | Asp | Thr | Gly | Ala | Gly | Trp | Gly | Leu | Leu | Leu | Val | Tyr | Ala |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Gly | Phe | Ala | Ser | Lys | Lys | Thr | Gly | Val | Val | Ser | Asn | Gly | Ala | Leu | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ala | Ile | Cys | Asn | Asn | Leu | Val | Ser | Leu | Ile | Met | Gly | Ile | Ile | Ile | Phe |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Ser | Thr | Cys | Ala | Ser | Leu | Asp | Ile | Leu | Gly | Thr | Thr | Gln | Leu | Gln | Asp |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Gly | Ala | Gly | Ala | Ser | Ser | Ile | Gly | Ile | Thr | Phe | Ile | Tyr | Leu | Pro | Glu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Leu | Phe | Thr | Arg | Leu | Pro | Gly | Gly | Ile | Tyr | Leu | Thr | Thr | Leu | Phe | Ser |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Ser | Ile | Phe | Phe | Leu | Ala | Phe | Ser | Met | Ala | Ala | Leu | Ser | Ser | Met | Ile |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ser | Met | Leu | Phe | Leu | Leu | Ser | Gln | Thr | Leu | Ala | Glu | Phe | Gly | Ile | Lys |
| | | 340 | | | | | | 345 | | | | | 350 | | |
| Pro | Tyr | Ile | Ser | Glu | Thr | Leu | Ala | Thr | Ile | Ile | Ala | Phe | Val | Leu | Gly |
| | 355 | | | | | | 360 | | | | | 365 | | | |
| Ile | Pro | Ser | Ala | Leu | Ser | Leu | Thr | Phe | Phe | Ser | Asn | Gln | Asp | Thr | Val |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Trp | Gly | Val | Ala | Leu | Ile | Val | Asn | Gly | Leu | Ile | Phe | Ile | Tyr | Ala | Ala |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Leu | Val | Tyr | Gly | Phe | Pro | Lys | Leu | Lys | Lys | Glu | Val | Ile | Asn | Ala | Ala |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Pro | Gly | Asp | Leu | Arg | Leu | Asn | Lys | Ala | Phe | Asp | Tyr | Ile | Ile | Lys | Tyr |
| | | | | 420 | | | | 425 | | | | | 430 | | |
| Leu | Leu | Pro | Ile | Glu | Gly | Ile | Leu | Leu | Leu | Gly | Trp | Tyr | Phe | Tyr | Glu |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Gly | Leu | Phe | Pro | Glu | Asn | Gly | Gln | Trp | Trp | Asn | Pro | Ile | Ser | Leu | Tyr |
| | 450 | | | | | 455 | | | | 460 | | | | | |
| Ser | Leu | Gly | Ser | Leu | Val | Leu | Gln | Trp | Ser | Leu | Gly | Leu | Ile | Ile | Leu |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |

Trp Lys Phe Asn Lys Gln Leu Tyr Leu Arg Phe Ser Arg Tyr Asn His
 485 490 495
 Glu Ile Leu

<210> 293
 <211> 179
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 293
 Glu Lys His Met Ser Ala Pro Ile Pro Thr Pro Gln Glu Leu Ser Asp
 1 5 10 15
 Gln Ile Thr Cys Leu Asn Val Gln Tyr Gln Gln Val Ser Glu Leu Ala
 20 25 30
 Arg Glu Asn Lys Gly Asp Ile Glu Gly Leu Lys Thr Leu Thr Ala Ala
 35 40 45
 Leu Thr Ala Asp Ala Gly Ile Gln Pro Ser Ala Asp Glu Ile Tyr Ser
 50 55 60
 Leu Gln Thr Ala Ala Ala Leu Ile Leu Ser Ala Ser Glu Lys Pro Gly
 65 70 75 80
 Ser Gly Pro Ser Gly Ser Thr Glu Gly Ser Val Thr Val Gln Ser Pro
 85 90 95
 Cys Lys Phe Lys Lys Val Leu Ala Val Val Leu Thr Ile Ile Ala Leu
 100 105 110
 Ile Ala Ile Ala Val Leu Ile Ala Cys Ile Ile Ala Ala Cys Gly Gly
 115 120 125
 Phe Pro Leu Leu Leu Ser Ala Leu Asn Leu Tyr Thr Ile Gly Ala Cys
 130 135 140
 Val Ser Leu Pro Ile Ile Ala Ser Thr Ser Val Ala Leu Ile Cys Leu
 145 150 155 160
 Cys Thr Phe Val Ala Asn Ser Leu Ile Lys Pro Val Ile Thr Val Arg
 165 170 175
 Thr Thr Arg

<210> 294
 <211> 212
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 294
 Val Lys Asn Thr Lys Asn Ser Asp Phe Met Thr Ser Pro Ile Pro Phe
 1 5 10 15
 Gln Ser Ser Gly Asp Ala Ser Phe Leu Ala Glu Gln Pro Gln Gln Leu
 20 25 30
 Pro Ser Thr Ser Glu Ser Gln Leu Val Thr Gln Leu Leu Thr Met Met
 35 40 45
 Lys His Thr Gln Ala Leu Ser Glu Thr Val Leu Gln Gln Gln Arg Asp
 50 55 60
 Arg Leu Pro Thr Ala Ser Ile Ile Leu Gln Val Gly Gly Ala Pro Thr
 65 70 75 80
 Gly Gly Ala Gly Ala Pro Phe Gln Pro Gly Pro Ala Asp Asp His His
 85 90 95
 His Pro Ile Pro Pro Pro Val Val Pro Ala Gln Ile Glu Thr Glu Ile
 100 105 110
 Thr Thr Ile Arg Ser Glu Leu Gln Leu Met Arg Ser Thr Leu Gln Gln
 115 120 125
 Ser Thr Lys Gly Ala Arg Thr Gly Val Leu Val Val Thr Ala Ile Leu
 130 135 140

Met Thr Ile Ser Leu Leu Ala Ile Ile Ile Ile Ile Leu Ala Val Leu
 145 150 155 160
 Gly Phe Thr Gly Val Leu Pro Gln Val Ala Leu Leu Met Gln Gly Glu
 165 170 175
 Thr Asn Leu Ile Trp Ala Met Val Ser Gly Ser Ile Ile Cys Phe Ile
 180 185 190
 Ala Leu Ile Gly Thr Leu Gly Leu Ile Leu Thr Asn Lys Asn Thr Pro
 195 200 205
 Leu Pro Ala Ser
 210

<210> 295
 <211> 928
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 295
 Val Trp Ser Met Gln Arg Val Leu Arg Leu Leu Phe Asn Leu His His
 1 5 10 15
 Gly Glu Glu Lys Arg Ala Phe Leu Phe Phe Leu Leu Gly Leu Val Trp
 20 25 30
 Gly Ile Gly Cys Tyr Gly Thr Leu Ser Leu Ala Glu Gly Leu Phe Ile
 35 40 45
 Glu Lys Leu Gly Ser Ala Glu Leu Pro Lys Ile Tyr Leu Gly Ser Ser
 50 55 60
 Leu Ile Leu Cys Val Leu Ser Ser Leu Ile Leu Tyr Asn Leu Phe Lys
 65 70 75 80
 Lys His Ile Ser Ala Thr Ala Leu Phe Leu Ile Pro Val Ser Leu Ser
 85 90 95
 Ile Leu Cys Asn Phe Tyr Leu Ile Leu Ser Ser Ile Phe Ala Ile Asp
 100 105 110
 Pro Pro Arg Ser Pro Leu Phe Phe Tyr Arg Ile Val Ile Trp Ser Leu
 115 120 125
 Thr Ile Leu Ser Tyr Thr Ser Phe Trp Gly Phe Val Asp Gln Phe Phe
 130 135 140
 Asn Leu Gln Asp Gly Lys Arg His Phe Cys Ile Phe Asn Ala Ile Ile
 145 150 155 160
 Phe Leu Gly Asp Ala Ile Gly Ser Gly Ile Ile Ala Ser Leu Val His
 165 170 175
 Thr Ile Gly Ile Gln Gly Ile Leu Ile Leu Phe Thr Ala Ala Leu Val
 180 185 190
 Leu Thr Phe Pro Ile Val Phe Tyr Val Ser Lys Ser Leu Lys Ser Leu
 195 200 205
 Ser Asp Asp His Asp Leu Phe Ile Asp Thr Gly His Pro Pro Pro Leu
 210 215 220
 Ser Lys Ala Leu Lys Leu Cys Phe Tyr Asp Lys Tyr Thr Phe Tyr Leu
 225 230 235 240
 Leu Cys Phe Tyr Phe Leu Met Gln Leu Leu Ala Ile Ala Thr Glu Phe
 245 250 255
 Asn Tyr Leu Lys Ile Phe Glu Ile Gln Phe Ala Ser Lys Glu Glu Phe
 260 265 270
 Glu Leu Val Ala His Ile Gly Lys Cys Ser Leu Trp Ile Ser Leu Gly
 275 280 285
 Asn Met Cys Phe Ala Leu Phe Ala Tyr Ser Arg Ile Val Lys Arg Leu
 290 295 300
 Gly Val Asn Asn Ile Ile Leu Phe Ala Pro Leu Cys Phe Leu Ser Leu
 305 310 315 320
 Phe Leu Phe Trp Thr Phe Lys Thr Thr Leu Ser Ile Ala Val Leu Ala
 325 330 335
 Met Val Val Arg Glu Gly Val Thr Tyr Ala Leu Asp Asp Asn Asn Leu
 340 345 350

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Leu | Leu | Ile | Tyr | Gly | Val | Pro | Asn | Lys | Ile | Arg | Asn | Gln | Ile | Arg | 355 | 360 | 365 |
| Ile | Val | Val | Glu | Ser | Phe | Ile | Glu | Pro | Ile | Gly | Met | Leu | Val | Trp | Ser | 370 | 375 | 380 |
| Leu | Ile | Cys | Phe | Leu | Ser | Ser | Gln | Gln | Tyr | Val | Phe | Cys | Leu | Ile | Ile | 385 | 390 | 395 |
| Ser | Leu | Ile | Ala | Thr | Ile | Leu | Val | Cys | Leu | Val | Arg | Ser | Tyr | Tyr | Ala | 405 | 410 | 415 |
| Lys | Ala | Ile | Leu | Lys | Asn | Leu | Ser | Ala | Gln | Ala | Leu | Gln | Leu | Thr | Arg | 420 | 425 | 430 |
| Ser | Met | Gln | Asp | Trp | Ile | Lys | Ser | Met | Thr | Val | Lys | Gln | Lys | Arg | Gln | 435 | 440 | 445 |
| Val | Glu | Leu | Phe | Leu | Leu | Ala | His | Leu | Lys | His | Pro | Ser | Glu | Arg | His | 450 | 455 | 460 |
| Gln | Thr | Phe | Ala | Phe | Gln | His | Leu | Leu | Asn | Leu | Ala | Ser | Arg | Ser | Val | 465 | 470 | 475 |
| Leu | Pro | Ser | Leu | Leu | Ala | His | Met | Asn | Lys | Leu | Ser | Leu | Pro | Asn | Lys | 485 | 490 | 495 |
| Leu | Lys | Thr | Ile | Glu | Met | Val | Lys | Ser | Ser | Leu | Trp | Ala | Lys | Asp | Phe | 500 | 505 | 510 |
| Leu | Thr | Leu | Glu | Leu | Leu | Lys | Arg | Trp | Thr | Ser | Ile | Phe | Pro | His | Pro | 515 | 520 | 525 |
| Ala | Ile | Ala | Ser | Ala | Ile | His | Leu | Tyr | Phe | Ala | Glu | His | Asp | Leu | Leu | 530 | 535 | 540 |
| His | Ile | Thr | His | Ile | Ala | Glu | Asp | Leu | Tyr | Asp | Thr | Val | Gly | Asp | Arg | 545 | 550 | 555 |
| Leu | Leu | Ala | Ala | Ile | Leu | Thr | Val | Arg | Arg | Gln | Glu | Ala | Tyr | Gly | Pro | 565 | 570 | 575 |
| Tyr | Arg | Asp | Leu | Ala | Asp | Lys | Arg | Leu | Lys | Glu | Leu | Leu | Asn | Ser | Asp | 580 | 585 | 590 |
| Gln | Pro | Glu | Asp | Ile | Val | Met | Gly | Leu | Thr | Ile | Leu | Lys | Leu | Glu | Lys | 595 | 600 | 605 |
| Asn | Pro | Gln | Asn | Phe | Pro | Ile | Leu | Leu | Asp | Phe | Leu | Asn | Thr | Lys | Asn | 610 | 615 | 620 |
| Glu | Asp | Ile | Leu | Ile | Val | Thr | Cys | Lys | Ala | Leu | His | Thr | Ser | Val | Arg | 625 | 630 | 635 |
| Ala | Asn | His | Lys | Pro | Tyr | Cys | Pro | Glu | Leu | Leu | Lys | Arg | Leu | Arg | Gln | 645 | 650 | 655 |
| Cys | Ser | His | Asn | Asp | Glu | Ala | Ser | Gln | Tyr | Leu | Leu | Lys | Thr | Ile | Ser | 660 | 665 | 670 |
| Ile | Ala | Leu | Asp | Ile | Ser | Phe | Val | Lys | Asp | Leu | Leu | Met | Thr | Thr | Ser | 675 | 680 | 685 |
| Gln | Leu | Lys | Asn | Thr | Ser | Arg | Lys | Tyr | Ala | Glu | Ala | Met | Ile | Gly | Glu | 690 | 695 | 700 |
| Leu | Asp | Lys | Glu | Val | Ala | Pro | Ala | Phe | Leu | Gln | Val | Leu | Thr | Asp | Glu | 705 | 710 | 715 |
| Gly | Thr | His | Asn | Arg | Cys | Arg | Ile | Leu | Ala | Ala | Lys | Ala | Leu | Cys | Lys | 725 | 730 | 735 |
| Ile | Asp | Asn | Trp | Leu | Leu | Lys | Lys | His | Ala | Tyr | Lys | Ile | Val | Lys | Ser | 740 | 745 | 750 |
| Lys | Ala | Ser | Lys | Ala | Leu | Phe | Tyr | Ser | Tyr | His | Gly | His | Tyr | Ile | Gln | 755 | 760 | 765 |
| Lys | Lys | Tyr | Pro | Thr | Tyr | Asn | Leu | Ser | Leu | Leu | Ala | Asn | Thr | Leu | Asn | 770 | 775 | 780 |
| Ser | Asn | Tyr | Tyr | Ala | Glu | Val | Asn | Phe | Met | Leu | Ser | Leu | Leu | Gly | Ile | 785 | 790 | 795 |
| Leu | Gly | Ser | Met | Glu | His | Ser | Gly | Val | Leu | Ile | Arg | Ala | Leu | Thr | Ser | 805 | 810 | 815 |
| Lys | Asn | Gln | Lys | Ile | Lys | Ala | Gln | Ala | Leu | Glu | Ser | Leu | Glu | Lys | Asn | 820 | 825 | 830 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Asp | Ser | His | Leu | Phe | Ser | Leu | Leu | Glu | Pro | Phe | Val | Asn | Gln | Pro |
| | | 835 | | | | | 840 | | | | | 845 | | | |
| Gly | Met | Cys | Tyr | Ser | Glu | Lys | Tyr | Tyr | Phe | Lys | Cys | Gly | Val | Ile | Pro |
| | 850 | | | | | 855 | | | | | 860 | | | | |
| Leu | Thr | Leu | Lys | Glu | Leu | Leu | Asn | Met | Met | Glu | Asn | Ser | Pro | Ser | Ser |
| 865 | | | | | 870 | | | | | 875 | | | | 880 | |
| Leu | Asn | Lys | Leu | Thr | Ala | Gln | Gln | Leu | Lys | Glu | Glu | Leu | Ser | Tyr | Cys |
| | | | 885 | | | | | | 890 | | | | | 895 | |
| Asp | Pro | Asp | Phe | Gln | Ser | Val | Asn | Thr | Ile | Tyr | Asn | Gln | Glu | His | Glu |
| | | | 900 | | | | | 905 | | | | | 910 | | |
| Asp | Phe | Arg | Thr | Glu | Glu | Ser | Glu | Thr | Leu | Ile | Ser | Phe | Leu | Ser | Ile |
| | | 915 | | | | | 920 | | | | | 925 | | | |

<210> 296
 <211> 142
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Ile | Arg | Asn | Phe | Phe | Met | Asn | Leu | Ile | Asp | Arg | Ala | Phe | Leu | Leu | Lys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Lys | Thr | Ile | Ile | Phe | Gln | Ser | Leu | Asp | Met | Asp | Leu | Leu | Leu | Thr | Ile |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Ala | Asp | Lys | Thr | Glu | Thr | Ile | Ile | Phe | Lys | Pro | Gly | Ser | Asn | Val | Phe |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Ser | Ile | Gly | Gln | Pro | Gly | Phe | Ser | Phe | Tyr | Ile | Ile | Val | Glu | Gly | Tyr |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Thr | Ile | Ser | Lys | Glu | Lys | Leu | Glu | Ser | Pro | Leu | Asn | Leu | Lys | Pro |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Leu | Asp | Cys | Phe | Gly | Glu | Glu | Ser | Leu | Phe | Asn | Asn | Lys | Pro | Arg | Glu |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Tyr | Asn | Ala | Ser | Ala | Asn | Thr | Gln | Val | Arg | Met | Leu | Val | Leu | Ser | Lys |
| | | 100 | | | | | 105 | | | | | | 110 | | |
| Gly | Gln | Ile | Leu | Asn | Ile | Val | Glu | Glu | Cys | Pro | Ser | Val | Ala | Leu | Ser |
| | | 115 | | | | 120 | | | | | | 125 | | | |
| Phe | Leu | Glu | Leu | Tyr | Ala | Lys | Gln | Ile | Lys | Phe | Arg | Glu | Pro | | |
| | 130 | | | | | 135 | | | | | 140 | | | | |

<210> 297
 <211> 80
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Ala | Met | Ser | Leu | Glu | Asp | Asp | Val | Ile | Ala | Ile | Ile | Val | Glu | Gln | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Val | Asp | Pro | Lys | Glu | Val | Asn | Glu | Asn | Ser | Ser | Phe | Ile | Glu | Asp |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Leu | Asn | Ala | Asp | Ser | Leu | Asp | Leu | Thr | Glu | Leu | Ile | Met | Thr | Leu | Glu |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Glu | Lys | Phe | Ala | Phe | Glu | Ile | Ser | Glu | Glu | Asp | Ala | Glu | Lys | Leu | Arg |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Thr | Val | Gly | Asp | Val | Phe | Thr | Tyr | Ile | Lys | Lys | Arg | Gln | Ala | Glu | Gln |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | |

<210> 298
 <211> 257
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 298

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Ile | Pro | Ile | Arg | Gly | Met | Ile | Cys | Met | Asp | Ile | Thr | Leu | Val | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Lys | Lys | Val | Ile | Val | Thr | Gly | Gly | Ser | Arg | Gly | Ile | Gly | Leu | Gly | Ile |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Val | Lys | Leu | Phe | Leu | Glu | Asn | Gly | Ala | Asp | Val | Glu | Ile | Trp | Gly | Leu |
| | 35 | | | | | | 40 | | | | 45 | | | | |
| Asn | Glu | Glu | Arg | Gly | Gln | Ala | Val | Ile | Glu | Ser | Leu | Thr | Gly | Leu | Gly |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gly | Glu | Val | Ser | Phe | Ala | Arg | Val | Asp | Val | Ser | His | Asn | Gly | Gly | Val |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Lys | Asp | Cys | Val | Gln | Lys | Phe | Leu | Asp | Lys | His | Asn | Lys | Ile | Asp | Ile |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Leu | Val | Asn | Asn | Ala | Gly | Ile | Thr | Arg | Asp | Asn | Leu | Leu | Met | Arg | Met |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Ser | Glu | Asp | Asp | Trp | Gln | Ser | Val | Ile | Ser | Thr | Asn | Leu | Thr | Ser | Leu |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Tyr | Tyr | Thr | Cys | Ser | Ser | Val | Ile | Arg | His | Met | Ile | Lys | Ala | Arg | Ser |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gly | Ser | Ile | Ile | Asn | Val | Ala | Ser | Ile | Val | Ala | Lys | Ile | Gly | Ser | Ala |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gly | Gln | Thr | Asn | Tyr | Ala | Ala | Ala | Lys | Ala | Gly | Ile | Ile | Ala | Phe | Thr |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Lys | Ser | Leu | Ala | Lys | Glu | Val | Ala | Ala | Arg | Asn | Ile | Arg | Val | Asn | Cys |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Leu | Ala | Pro | Gly | Phe | Ile | Glu | Thr | Asp | Met | Thr | Ser | Val | Leu | Asn | Asp |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Asn | Leu | Lys | Ala | Glu | Trp | Leu | Lys | Ser | Ile | Pro | Leu | Gly | Arg | Ala | Gly |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Thr | Pro | Glu | Asp | Val | Ala | Arg | Val | Ala | Leu | Phe | Leu | Ala | Ser | Gln | Leu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ser | Ser | Tyr | Met | Thr | Ala | Gln | Thr | Leu | Val | Val | Asp | Gly | Gly | Leu | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 | |

Tyr

<210> 299
 <211> 317
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 299

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Arg | Ser | Asn | Lys | Asp | Asp | Asn | Phe | Met | Lys | Lys | Arg | Tyr | Ala | Phe |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Phe | Pro | Gly | Gln | Gly | Ser | Gln | Tyr | Val | Gly | Met | Gly | Gln | Asp | Leu |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Tyr | Met | Glu | Tyr | Pro | Glu | Val | Arg | Glu | Leu | Phe | Asp | Phe | Ala | Asn | Glu |
| | 35 | | | | | | 40 | | | | 45 | | | | |
| Arg | Leu | Gly | Phe | Ser | Leu | Thr | Ser | Ile | Met | Phe | Glu | Gly | Pro | Glu | Asp |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Leu | Leu | Met | Glu | Thr | Val | His | Ser | Gln | Leu | Ala | Ile | Tyr | Leu | His | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Met | Ala | Val | Val | Lys | Val | Leu | Ser | Gln | Arg | Ser | Ser | Ile | Gln | Pro | Ser |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Leu | Val | Ser | Gly | Leu | Ser | Leu | Gly | Glu | Tyr | Thr | Ala | Leu | Val | Ala | Ser |
| | | 100 | | | | | 105 | | | | | 110 | | | |
| Asp | Arg | Ile | Ser | Val | Leu | Asp | Gly | Leu | Glu | Leu | Val | Arg | Lys | Arg | Gly |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Gln | Leu | Met | Asn | Glu | Ala | Cys | Asn | Gln | Ser | Pro | Gly | Ala | Met | Ala | Ala |
| | 130 | | | | | 135 | | | | | 140 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Leu | Gly | Leu | Pro | Ser | Glu | Val | Ile | Glu | Glu | Asn | Ile | Thr | Ser | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gly | Gln | Gly | Ile | Trp | Ile | Ala | Asn | Tyr | Asn | Ala | Pro | Lys | Gln | Leu | Val |
| | | | | 165 | | | | | 170 | | | | | | 175 |
| Val | Ala | Gly | Ile | Ala | Glu | Lys | Val | Asp | Gln | Ala | Ile | Glu | Leu | Phe | Arg |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Asp | Leu | Gly | Cys | Lys | Lys | Ala | Val | Arg | Leu | Lys | Val | Ser | Gly | Ala | Phe |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| His | Thr | Pro | Leu | Met | Gln | Val | Ala | Gln | Asp | Gly | Leu | Ala | Pro | Asp | Ile |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Tyr | Ala | Leu | Cys | Met | Lys | Asp | Ser | Ser | Leu | Pro | Leu | Val | Ser | His | Val |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Val | Gly | Lys | Ser | Leu | Val | Asn | Thr | Glu | Glu | Met | Arg | Glu | Cys | Leu | Ala |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Arg | Gln | Met | Thr | Ser | Pro | Thr | Leu | Trp | Tyr | Gln | Ser | Cys | Tyr | His | Ile |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Glu | Ser | Glu | Val | Asp | Glu | Phe | Leu | Glu | Leu | Gly | Pro | Gly | Lys | Val | Leu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ala | Gly | Leu | Asn | Arg | Ser | Ile | Gly | Ile | Ser | Lys | Pro | Ile | Thr | Ser | Leu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Gly | Thr | Phe | Ala | Gln | Ile | Glu | Lys | Phe | Leu | Ser | Glu | Val | | | |
| 305 | | | | | 310 | | | | | 315 | | | | | |

<210> 300

<211> 342

<212> PRT

<213> Chlamydia pneumoniae

<400> 300

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Thr | Ser | Phe | Phe | Leu | Tyr | Met | Trp | Phe | Ser | Val | Asn | Lys | Asn | Lys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Lys | Ala | Ala | Ile | Trp | Ala | Thr | Gly | Ser | Tyr | Leu | Pro | Glu | Lys | Val | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ser | Asn | Ala | Asp | Leu | Glu | Lys | Met | Val | Asp | Thr | Ser | Asp | Glu | Trp | Ile |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Val | Thr | Arg | Thr | Gly | Ile | Lys | Glu | Arg | Arg | Ile | Ala | Gly | Pro | Gln | Glu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Tyr | Thr | Ser | Leu | Met | Gly | Ala | Ile | Ala | Ala | Glu | Lys | Ala | Ile | Ala | Asn |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ala | Gly | Leu | Ser | Lys | Asp | Gln | Ile | Asp | Cys | Ile | Ile | Phe | Ser | Thr | Ala |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Pro | Asp | Tyr | Ile | Phe | Pro | Ser | Ser | Gly | Ala | Leu | Ala | Gln | Ala | His |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Gly | Ile | Glu | Asp | Val | Pro | Thr | Phe | Asp | Cys | Gln | Ala | Ala | Cys | Thr |
| | | | 115 | | | | 120 | | | | | 125 | | | |
| Gly | Tyr | Leu | Tyr | Gly | Leu | Ser | Val | Ala | Lys | Ala | Tyr | Val | Glu | Ser | Gly |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Thr | Tyr | Asn | His | Val | Leu | Leu | Ile | Ala | Ala | Asp | Lys | Leu | Ser | Ser | Phe |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Val | Asp | Tyr | Thr | Asp | Arg | Asn | Thr | Cys | Val | Leu | Phe | Gly | Asp | Gly | Gly |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ala | Ala | Cys | Val | Ile | Gly | Glu | Ser | Arg | Pro | Gly | Ser | Leu | Glu | Ile | Asn |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Arg | Leu | Ser | Leu | Gly | Ala | Asp | Gly | Lys | Leu | Gly | Glu | Leu | Leu | Ser | Leu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Pro | Ala | Gly | Gly | Ser | Arg | Cys | Pro | Ala | Ser | Lys | Glu | Thr | Leu | Gln | Ser |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gly | Lys | His | Phe | Ile | Ala | Met | Glu | Gly | Lys | Glu | Val | Phe | Lys | His | Ala |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Val | Arg | Arg | Met | Glu | Thr | Ala | Ala | Lys | His | Ser | Ile | Ala | Leu | Ala | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 | |

Ile Gln Glu Glu Asp Ile Asp Trp Phe Val Pro His Gln Ala Asn Glu
260 265 270
Arg Ile Ile Asp Ala Leu Ala Lys Arg Phe Glu Ile Asp Glu Ser Arg
275 280 285
Val Phe Lys Ser Val His Lys Tyr Gly Asn Thr Ala Ala Ser Ser Val
290 295 300
Gly Ile Ala Leu Asp Glu Leu Val His Thr Glu Ser Ile Lys Leu Asp
305 310 315 320
Asp Tyr Leu Leu Leu Val Ala Phe Gly Gly Gly Leu Ser Trp Gly Ala
325 330 335
Val Val Leu Lys Gln Val
340

<210> 301

<211> 230

<212> PRT

<213> Chlamydia pneumoniae

<400> 301

Arg Lys Lys Leu Val Tyr Tyr Ser Glu Ser Leu Tyr Ser Asn Leu Asn
1 5 10 15
Leu Gly Pro Arg Pro Glu Cys Lys Asn Lys Ile His Ile Thr Met Thr
20 25 30
Arg Tyr Pro Asp Tyr Leu Ser Lys Leu Ile Phe Phe Leu Arg Lys Leu
35 40 45
Pro Gly Ile Gly Phe Lys Thr Ala Glu Lys Leu Ala Phe Glu Leu Ile
50 55 60
Ser Trp Asp Ser Glu Gln Leu Lys Ile Leu Gly Asn Ala Phe His Asn
65 70 75 80
Val Ala Ser Glu Arg Ser His Cys Pro Leu Cys Phe Thr Leu Lys Glu
85 90 95
Ser Lys Glu Ala Asp Cys His Phe Cys Arg Glu Glu Arg Asp Asn Gln
100 105 110
Ser Leu Cys Ile Val Ala Ser Pro Lys Asp Val Phe Phe Leu Glu Arg
115 120 125
Ser Lys Val Phe Lys Gly Arg Tyr His Val Leu Gly Ser Leu Leu Ser
130 135 140
Pro Ile Thr Gly Lys His Ile Glu Asn Glu Arg Leu Ser Ile Leu Lys
145 150 155 160
Ser Arg Ile Glu Thr Leu Cys Pro Lys Glu Ile Ile Leu Ala Ile Asp
165 170 175
Ala Thr Leu Glu Gly Asp Ala Thr Ala Leu Phe Leu Lys Gln Glu Leu
180 185 190
Gln His Phe Ser Val Asn Ile Ser Arg Leu Ala Leu Gly Leu Pro Ile
195 200 205
Gly Leu Ser Phe Asp Tyr Val Asp Ser Gly Thr Leu Ala Arg Ala Phe
210 215 220
Ser Gly Arg His Ser Tyr
225 230

<210> 302

<211> 795

<212> PRT

<213> Chlamydia pneumoniae

<400> 302

Gly Arg Leu Leu Gly Met Leu Ile Met Arg Asn Lys Val Ile Leu Gln
1 5 10 15
Ile Ser Ile Leu Ala Leu Ile Gln Thr Pro Leu Thr Leu Phe Ser Thr
20 25 30

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | His | Phe | Leu | Asn | Thr | Pro | Trp | Ile | Leu | Gly | Ile | Glu | Leu | Asp | Lys |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Ser | Ile | Asn | Arg | Ala | Leu | Ser | Lys | Asp | Tyr | Ala | Val | Gln | Thr | Tyr | Gly |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Gly | Asn | Val | Ser | Thr | Thr | Tyr | Ile | Leu | Asn | Glu | His | Leu | Lys | Tyr | Gly |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Leu | Phe | Tyr | Arg | Gly | Ser | Gln | Thr | Ser | Leu | His | Glu | Lys | Arg | Lys | Phe |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Leu | Leu | Gly | Pro | Asn | Ile | Asp | Ser | Asn | Lys | Gly | Phe | Val | Ser | Ala | Ala |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Gly | Val | Asn | Leu | Asn | Tyr | Asp | Ser | Val | Asp | Ser | Pro | Arg | Thr | Pro | Thr |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Thr | Gly | Ile | Arg | Gly | Gly | Val | Thr | Phe | Glu | Val | Ser | Gly | Leu | Gly | Gly |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Thr | Tyr | His | Phe | Thr | Lys | Leu | Ser | Leu | Asn | Ser | Ser | Ile | Tyr | Arg | Lys |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Leu | Thr | Arg | Lys | Gly | Ile | Leu | Lys | Ile | Lys | Gly | Glu | Ala | Gln | Phe | Ile |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Lys | Pro | Tyr | Ser | Asn | Thr | Thr | Ala | Glu | Gly | Val | Pro | Val | Ser | Glu | Arg |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Phe | Phe | Leu | Gly | Gly | Glu | Thr | Thr | Val | Arg | Gly | Tyr | Lys | Ser | Phe | Ile |
| | | 675 | | | | | | 680 | | | | 685 | | | |
| Ile | Gly | Pro | Lys | Tyr | Ser | Ala | Thr | Glu | Pro | Gln | Gly | Gly | Leu | Ser | Ser |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Leu | Leu | Ile | Ser | Glu | Glu | Phe | Gln | Tyr | Pro | Leu | Ile | Arg | Gln | Pro | Asn |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Ile | Ser | Ala | Phe | Val | Phe | Leu | Asp | Ser | Gly | Phe | Val | Gly | Leu | Gln | Glu |
| | | | 725 | | | | | | 730 | | | | | 735 | |
| Tyr | Lys | Ile | Ser | Leu | Lys | Asp | Leu | Arg | Ser | Ser | Ala | Gly | Phe | Gly | Leu |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Arg | Phe | Asp | Val | Met | Asn | Asn | Val | Pro | Val | Met | Leu | Gly | Phe | Gly | Trp |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Pro | Phe | Arg | Pro | Thr | Glu | Thr | Leu | Asn | Gly | Glu | Lys | Ile | Asp | Val | Ser |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Gln | Arg | Phe | Phe | Phe | Ala | Leu | Gly | Gly | Met | Phe | | | | | |
| 785 | | | | | 790 | | | | | 795 | | | | | |

<210> 303
 <211> 200
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 303

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Lys | Asp | Leu | Ser | Lys | Glu | Ile | Phe | Val | Val | Phe | Arg | Lys | Gly | Phe |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Trp | Tyr | Pro | Phe | Ser | Ile | Pro | Lys | Leu | Val | Gln | Val | Ile | Met | Lys | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Leu | Phe | Ser | Thr | Phe | Leu | Leu | Val | Leu | Gly | Ser | Thr | Ser | Ala | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| His | Ala | Asn | Leu | Gly | Tyr | Val | Asn | Leu | Lys | Arg | Cys | Leu | Glu | Glu | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Asp | Leu | Gly | Lys | Lys | Glu | Thr | Glu | Glu | Leu | Glu | Ala | Met | Lys | Gln | Gln |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Phe | Val | Lys | Asn | Ala | Glu | Lys | Ile | Glu | Glu | Glu | Leu | Thr | Ser | Ile | Tyr |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Asn | Lys | Leu | Gln | Asp | Glu | Asp | Tyr | Met | Glu | Ser | Leu | Ser | Asp | Ser | Ala |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Glu | Glu | Leu | Arg | Lys | Lys | Phe | Glu | Asp | Leu | Ser | Gly | Glu | Tyr | Asn |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ala | Tyr | Gln | Ser | Gln | Tyr | Tyr | Gln | Ser | Ile | Asn | Gln | Ser | Asn | Val | Lys |
| | 130 | | | | | | 135 | | | | | 140 | | | |

Arg Ile Gln Lys Leu Ile Gln Glu Val Lys Ile Ala Ala Glu Ser Val
 145 150 155 160
 Arg Ser Lys Glu Lys Leu Glu Ala Ile Leu Asn Glu Glu Ala Val Leu
 165 170 175
 Ala Ile Ala Pro Gly Thr Asp Lys Thr Thr Glu Ile Ile Ala Ile Leu
 180 185 190
 Asn Glu Ser Phe Lys Lys Gln Asn
 195 200

<210> 304
 <211> 367
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 304
 Ser Lys Phe Lys Glu Phe Ser Met Ser Glu Ala Pro Val Tyr Thr Leu
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 Lys Gln Leu Ala Glu Leu Leu Gln Val Glu Val Gln Gly Asn Ile Glu
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 Thr Pro Ile Ser Gly Val Glu Asp Ile Ser Gln Ala Gln Pro His His
 35 40 45
 Ile Ala Phe Leu Asp Asn Glu Lys Tyr Ser Ser Phe Leu Lys Asn Thr
 50 55 60
 Lys Ala Gly Ala Ile Ile Leu Ser Arg Ser Gln Ala Met Gln His Ala
 65 70 75 80
 His Leu Lys Lys Asn Phe Leu Ile Thr Asn Glu Ser Pro Ser Leu Thr
 85 90 95
 Phe Gln Lys Cys Ile Glu Leu Phe Ile Glu Pro Val Thr Ser Gly Phe
 100 105 110
 Pro Gly Ile His Pro Thr Ala Val Ile His Pro Thr Ala Arg Ile Glu
 115 120 125
 Lys Asn Val Thr Ile Glu Pro Tyr Val Val Ile Ser Gln His Ala His
 130 135 140
 Ile Gly Ser Asp Thr Tyr Ile Gly Ala Gly Ser Val Ile Gly Ala His
 145 150 155 160
 Ser Val Leu Gly Ala Asn Cys Leu Ile His Pro Lys Val Val Ile Arg
 165 170 175
 Glu Arg Val Leu Met Gly Asn Arg Val Val Val Gln Pro Gly Ala Val
 180 185 190
 Leu Gly Ser Cys Gly Phe Gly Tyr Ile Thr Asn Ala Phe Gly His His
 195 200 205
 Lys Pro Leu Lys His Leu Gly Tyr Val Ile Val Gly Asp Asp Val Glu
 210 215 220
 Ile Gly Ala Asn Thr Thr Ile Asp Arg Gly Arg Phe Lys Asn Thr Val
 225 230 235 240
 Ile His Glu Gly Thr Lys Ile Asp Asn Gln Val Gln Val Ala His His
 245 250 255
 Val Glu Ile Gly Lys His Ser Ile Ile Val Ala Gln Ala Gly Ile Ala
 260 265 270
 Gly Ser Thr Lys Ile Gly Glu His Val Ile Ile Gly Gly Gln Thr Gly
 275 280 285
 Ile Thr Gly His Ile Ser Ile Ala Asp His Val Ile Met Ile Ala Gln
 290 295 300
 Thr Gly Val Thr Lys Ser Ile Thr Ser Pro Gly Ile Tyr Gly Gly Ala
 305 310 315 320
 Pro Ala Arg Pro Tyr Gln Glu Thr His Arg Leu Ile Ala Lys Ile Arg
 325 330 335
 Asn Leu Pro Lys Thr Glu Glu Arg Leu Ser Lys Leu Glu Lys Gln Val
 340 345 350
 Arg Asp Leu Ser Thr Pro Ser Leu Ala Glu Ile Pro Ser Glu Ile
 355 360 365

<210> 305
 <211> 354
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 305
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 35 40 45
 Glu Glu Lys Leu Leu Thr Ile Thr Lys Arg Ile Val Ala Ser Ala Gln
 50 55 60
 Glu Phe Gln Asn Arg Lys Thr Asp Ser Lys Asn Tyr Tyr Leu Lys Lys
 65 70 75 80
 Thr Gln Trp Leu Pro Phe Lys Asn Glu Glu Leu Glu Gln Thr Lys Glu
 85 90 95
 Leu Phe Ala Met Leu Thr Ser Met Asp Lys Lys Ile Ala Gln Leu Phe
 100 105 110
 Phe Tyr Ser Pro Gly Cys Ser Ser Asp Trp Val Glu Phe Thr Glu Val
 115 120 125
 Ile Cys His Leu Asn Asp Ser Ile Gly Leu Gly Gly Val Leu Leu Cys
 130 135 140
 Cys Gly Leu Phe Glu Gln Gln Cys Glu His Val Val Thr Val Asn Lys
 145 150 155 160
 Lys Leu Asp Leu Pro Leu Leu Leu Gly Thr Thr Val Val Asn Ser Leu
 165 170 175
 Arg Tyr Tyr Leu Thr Tyr Arg Asn Ile Ser Leu Leu Asn Cys Gln Ser
 180 185 190
 Met Ser Glu Leu Gly Lys Glu Leu Gly Asp Val Leu Lys Gln His Gly
 195 200 205
 Val Ala Phe Thr Leu Ile Phe Lys Glu Ile Val Asp Ile Asp Leu Leu
 210 215 220
 Asn Tyr Val Lys Leu Ile Gln Gly Leu Lys Arg Ser Gly Asn Ile Gln
 225 230 235 240
 Ala Arg Ile Tyr Asp Asn Asp Val Pro Thr Leu Pro Ser Val Ser Ser
 245 250 255
 Ser Pro Ile Ala Leu Arg Tyr Ser Leu Ala Asn Thr Ile Arg Gly Leu
 260 265 270
 Ala Leu His Val Asp Phe Ser Ser Leu Lys Phe Ile Ser Pro Ser Ile
 275 280 285
 Leu Ser Asn Thr Glu His Thr Ala Lys Ala Leu Asn Ser Gly Gly Glu
 290 295 300
 Cys Phe Ile Phe Ser Asn Leu Asp Glu Phe Asn Leu Gly Met Lys Ile
 305 310 315 320
 Val Met Gln Leu Leu Arg Thr Gly Lys Ile Ser Pro Glu Ile Leu Asn
 325 330 335
 Lys Asn Ile Met Lys Ile Leu Met Ile Lys Arg Arg Val Arg Ser Leu
 340 345 350
 Tyr Ile

<210> 306
 <211> 356
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 306
 Asp Gln Lys Pro Leu Pro Lys Arg Leu Pro Tyr Lys Lys Val Met Asp
 1 5 10 15

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Ser | Ala | Pro | Tyr | Asn | Ile | Ala | Ser | Gln | Gly | Thr | Glu | Lys | Ser | Thr |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Val | Glu | Arg | Ile | Leu | Asp | Leu | Tyr | Gly | Pro | Ala | Ser | Cys | Ile | Lys | Phe |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Lys | Gln | Met | Val | Leu | Ile | Arg | Glu | Phe | Glu | Ala | Arg | Gly | Glu | Glu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ala | Tyr | Leu | Glu | Gly | Leu | Val | Gly | Gly | Phe | Tyr | His | Ser | Tyr | Ala | Gly |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gln | Glu | Ala | Val | Ala | Thr | Ala | Ala | Ile | Ala | Asn | Thr | Gly | Leu | Asp | Pro |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Trp | Val | Phe | Ser | Ser | Tyr | Arg | Cys | His | Ala | Leu | Ala | Ile | Leu | Leu | Asn |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ile | Pro | Leu | Gln | Glu | Ile | Ala | Ala | Glu | Leu | Leu | Gly | Lys | Glu | Thr | Gly |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Cys | Ala | Leu | Gly | Arg | Gly | Gly | Ser | Met | His | Met | Cys | Gly | Pro | Asn | Phe |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Pro | Gly | Gly | Phe | Gly | Ile | Val | Gly | Gly | Gln | Ile | Pro | Leu | Ala | Ala | Gly |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | Ala | Phe | Thr | Ile | Lys | Tyr | Gln | Glu | Gln | Lys | Asn | Arg | Val | Ser | Leu |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Cys | Phe | Ile | Gly | Asp | Gly | Ala | Val | Ala | Gln | Gly | Val | Phe | His | Glu | Thr |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Leu | Asn | Phe | Val | Ser | Leu | His | Gln | Leu | Pro | Leu | Met | Leu | Ile | Ile | Glu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Asn | Asn | Gly | Trp | Ser | Met | Gly | Thr | Ser | Leu | Asn | Arg | Ala | Val | Ala | Lys |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gln | Pro | Ile | Ala | Glu | Ser | Gln | Gly | Ser | Ser | Tyr | Asp | Ile | Arg | Ala | Val |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Thr | Val | Asn | Gly | Phe | Asp | Leu | Phe | Asn | Ser | Leu | Leu | Gly | Phe | Arg | Glu |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Ala | Tyr | Arg | Tyr | Met | Val | Asp | Thr | Glu | Ser | Pro | Val | Leu | Val | Glu | Cys |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Cys | Ser | Arg | Phe | Arg | Gly | His | Ser | Ile | Ser | Asp | Pro | Asn | Leu | Tyr |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Arg | Ser | Lys | Glu | Glu | Met | Gln | Cys | Leu | Phe | Lys | Lys | Asp | Pro | Ile | Val |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Leu | Ala | Lys | Asp | Trp | Leu | Ile | Arg | Leu | Glu | Val | Leu | Thr | Glu | Glu | Glu |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Phe | Gln | Asn | Ile | Arg | Gln | Glu | Cys | Lys | Thr | Ala | Val | Leu | Glu | Ala | Phe |
| | | | 325 | | | | | | 330 | | | | | 335 | |
| Ser | Asn | Ala | Lys | Leu | Ser | Ser | Asp | Pro | Ser | Val | Thr | Thr | Leu | Glu | Glu |
| | | 340 | | | | | | 345 | | | | | 350 | | |
| Gly | Val | Tyr | Ala | | | | | | | | | | | | |
| | | 355 | | | | | | | | | | | | | |

<210> 307

<211> 332

<212> PRT

<213> Chlamydia pneumoniae

<400> 307

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| Arg | Lys | Glu | Ser | Met | Pro | Lys | His | Lys | Thr | Leu | Glu | Ile | Arg | Glu | Ala |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Arg | Glu | Ala | Ile | Asp | Glu | Glu | Met | Ser | Arg | Asp | Pro | Asn | Val | Cys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ile | Leu | Gly | Glu | Glu | Val | Gly | Asp | Tyr | Asn | Gly | Ala | Tyr | Lys | Val | Thr |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Lys | Gly | Leu | Leu | Asp | Lys | Trp | Gly | Pro | Lys | Arg | Val | Ile | Asp | Ala | Pro |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Ser | Glu | Ala | Ala | Phe | Ser | Gly | Ile | Gly | Ile | Gly | Ala | Ala | Leu | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Leu | Arg | Pro | Ile | Ile | Glu | Phe | Met | Ser | Trp | Asn | Phe | Ser | Phe | Val |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Leu | Asp | Gln | Ile | Ile | Ser | His | Ala | Ala | Lys | Met | His | Phe | Met | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gly | Gly | Lys | Phe | Ser | Val | Pro | Ile | Val | Phe | Arg | Gly | Pro | Asn | Gly | Ala |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ala | Ala | Gln | Val | Ser | Cys | Gln | His | Ser | His | Cys | Val | Glu | Ser | Leu | Tyr |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ala | Asn | Ile | Pro | Gly | Leu | Ile | Ile | Ile | Ala | Pro | Ser | Asn | Pro | Tyr | Asp |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | Lys | Gly | Leu | Leu | Lys | Ser | Ala | Ile | Arg | Asn | Asn | Asn | Pro | Val | Leu |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Phe | Leu | Glu | Asn | Glu | Leu | Glu | Tyr | Asn | Leu | Lys | Gly | Glu | Val | Pro | Thr |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Glu | Glu | Tyr | Leu | Val | Pro | Ile | Gly | Lys | Ala | His | Arg | Val | Gln | Glu | Gly |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Asn | Asp | Leu | Thr | Ile | Ile | Thr | Tyr | Ser | Arg | Met | Val | Ser | Ile | Thr | Lys |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Glu | Ala | Cys | Ser | Leu | Ala | Lys | Lys | Arg | Trp | Gly | Leu | Ser | Ile | Glu | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ile | Asp | Leu | Arg | Thr | Ile | Lys | Pro | Leu | Asp | Ile | Ser | Thr | Ile | Leu | Ser |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ser | Val | Arg | Lys | Thr | Ser | Arg | Cys | Ile | Val | Ile | Glu | Glu | Gly | His | Tyr |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Phe | Ala | Gly | Ile | Ser | Ser | Glu | Ile | Ile | Ala | Leu | Ile | Thr | Glu | His | Val |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Phe | Asp | Ser | Leu | Asp | Ala | Pro | Pro | Leu | Arg | Val | Cys | Gln | Lys | Glu | Thr |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Pro | Met | Pro | Tyr | Ser | Lys | Ile | Leu | Glu | Gln | Ala | Thr | Leu | Pro | Asn | Val |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Asn | Arg | Ile | Leu | Asp | Thr | Ile | Glu | Lys | Val | Met | Arg | | | | |
| | | | 325 | | | | | | 330 | | | | | | |

<210> 308

<211> 432

<212> PRT

<213> Chlamydia pneumoniae

<400> 308

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Lys | Phe | Val | Ile | Ser | Leu | Leu | Lys | Met | Pro | Lys | Leu | Ser | Pro | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Met | Glu | Val | Gly | Thr | Ile | Val | Lys | Trp | His | Lys | Lys | Ser | Asn | Asp | Gln |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Val | Ser | Phe | Gly | Asp | Val | Ile | Val | Glu | Ile | Ser | Thr | Asp | Lys | Ala | Ile |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Glu | His | Thr | Ala | Asn | Glu | Asp | Gly | Trp | Ile | Arg | Glu | Ile | Leu | Arg |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| His | Glu | Gly | Glu | Lys | Ile | Val | Ile | Gly | Thr | Pro | Ile | Ala | Val | Leu | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Thr | Glu | Ala | Asn | Glu | Pro | Phe | Asn | Leu | Glu | Glu | Leu | Leu | Pro | Lys | Thr |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Glu | Pro | Ser | Asn | Leu | Glu | Ala | Ser | Pro | Lys | Gly | Ser | Ser | Glu | Glu | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Pro | Ala | Thr | Thr | Pro | Gln | Ala | Ala | Ser | Ala | Thr | Phe | Thr | Ala | Val |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Thr | Phe | Lys | Pro | Glu | Pro | Pro | Leu | Ser | Ser | Pro | Leu | Val | Phe | Lys | His |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Val | Gly | Thr | Thr | Asn | Asn | Leu | Ser | Pro | Leu | Ala | Arg | Gln | Leu | Ala | Lys |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Glu | Lys | Asn | Ile | Asp | Val | Ser | Ser | Ile | Gln | Gly | Ser | Gly | Pro | Gly | Gly |
| | | | | 165 | | | | | 170 | | | | | 175 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Arg | Ile | Val | Lys | Lys | Asp | Leu | Glu | Lys | Ala | Pro | Pro | Lys | Ser | Ile | Ala | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Gly | Phe | Gly | Tyr | Pro | Glu | Ser | Pro | Glu | Val | Pro | Pro | Gly | Ser | Tyr | His | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Glu | Glu | Asn | Leu | Ser | Pro | Ile | Arg | Glu | Val | Ile | Ala | Ala | Arg | Leu | Gln | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Ala | Ala | Lys | Ile | Ser | Ile | Pro | His | Phe | Tyr | Val | Arg | Gln | Gln | Val | Tyr | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Ala | Ser | Pro | Leu | Leu | Asn | Leu | Leu | Lys | Glu | Leu | Gln | Ala | Gln | Gly | Ile | |
| | | | 245 | | | | | | 250 | | | | | 255 | | |
| Lys | Leu | Ser | Ile | Asn | Asp | Cys | Ile | Val | Arg | Ala | Cys | Ala | Leu | Ala | Leu | |
| | | 260 | | | | | | 265 | | | | | 270 | | | |
| Lys | Glu | Phe | Pro | Ser | Ile | Asn | Ser | Gly | Phe | Asn | Ser | Val | Asp | Asn | Lys | |
| | 275 | | | | | | 280 | | | | | 285 | | | | |
| Ile | Val | Arg | Phe | Asp | Thr | Ile | Asp | Ile | Ser | Ile | Ala | Val | Ala | Ile | Pro | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Asp | Gly | Ile | Ile | Thr | Pro | Ile | Ile | Arg | Cys | Ala | Asp | Arg | Lys | Asn | Leu | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Gly | Met | Ile | Ser | Ala | Glu | Ile | Lys | Ser | Leu | Ala | Leu | Lys | Ala | Arg | Asn | |
| | | | 325 | | | | | | 330 | | | | | 335 | | |
| Gln | Ser | Leu | Gln | Asp | Thr | Glu | Tyr | Lys | Gly | Gly | Ser | Phe | Cys | Val | Ser | |
| | | 340 | | | | | | 345 | | | | | 350 | | | |
| Asn | Leu | Gly | Met | Thr | Gly | Ile | Thr | Glu | Phe | Thr | Ala | Ile | Val | Asn | Pro | |
| | 355 | | | | | 360 | | | | | 365 | | | | | |
| Pro | Gln | Ala | Ala | Ile | Leu | Ala | Val | Gly | Ser | Val | Thr | Glu | Gln | Ala | Leu | |
| | 370 | | | | 375 | | | | | | 380 | | | | | |
| Val | Leu | Asp | Gly | Glu | Ile | Thr | Ile | Gly | Ser | Thr | Cys | Asn | Leu | Thr | Leu | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| Ser | Val | Asp | His | Arg | Val | Ile | Asp | Gly | Tyr | Pro | Ala | Ala | Met | Phe | Met | |
| | | | 405 | | | | | | 410 | | | | | 415 | | |
| Lys | Arg | Leu | Gln | Lys | Ile | Leu | Glu | Ala | Pro | Ala | Val | Leu | Leu | Leu | Asn | |
| | | 420 | | | | | 425 | | | | | | 430 | | | |

<210> 309

<211> 828

<212> PRT

<213> Chlamydia pneumoniae

<400> 309

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| Asn | Gly | Cys | Ile | Val | Glu | Asp | Phe | Ser | Ser | Phe | Asp | Lys | Asn | Lys | Val | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| Ser | Val | Asp | Ser | Met | Lys | Arg | Ala | Ile | Leu | Asp | Arg | Leu | Tyr | Leu | Ser | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Val | Val | Gln | Ser | Pro | Glu | Ser | Ala | Ser | Pro | Arg | Asp | Ile | Phe | Thr | Ala | |
| | 35 | | | | | | 40 | | | | | 45 | | | | |
| Val | Ala | Lys | Thr | Val | Met | Glu | Trp | Leu | Ala | Lys | Gly | Trp | Leu | Lys | Thr | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Gln | Asn | Gly | Tyr | Tyr | Lys | Asn | Asp | Val | Lys | Arg | Val | Tyr | Tyr | Leu | Ser | |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | | |
| Met | Glu | Phe | Leu | Leu | Gly | Arg | Ser | Leu | Lys | Ser | Asn | Leu | Leu | Asn | Leu | |
| | | | 85 | | | | | | 90 | | | | | 95 | | |
| Gly | Ile | Leu | Asp | Leu | Val | Arg | Lys | Ala | Leu | Lys | Thr | Leu | Asn | Tyr | Asp | |
| | | 100 | | | | | | 105 | | | | | 110 | | | |
| Phe | Asp | His | Leu | Val | Glu | Met | Glu | Ser | Asp | Ala | Gly | Leu | Gly | Asn | Gly | |
| | 115 | | | | | | 120 | | | | | 125 | | | | |
| Gly | Leu | Gly | Arg | Leu | Ala | Ala | Cys | Tyr | Leu | Asp | Ser | Met | Ala | Thr | Leu | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Ala | Val | Pro | Ala | Tyr | Gly | Tyr | Gly | Ile | Arg | Tyr | Asp | Tyr | Gly | Ile | Phe | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Asp | Gln | Arg | Ile | Val | Asn | Gly | Tyr | Gln | Glu | Glu | Ala | Pro | Asp | Glu | Trp | |
| | | | 165 | | | | | | 170 | | | | | 175 | | |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Leu | Arg | Tyr | Gly | Asn | Pro | Trp | Glu | Ile | Cys | Arg | Gly | Glu | Tyr | Leu | Tyr | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| Pro | Val | Arg | Phe | Tyr | Gly | Arg | Val | Ile | His | Tyr | Thr | Asp | Ser | Arg | Gly | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| Lys | Gln | Val | Ala | Asp | Leu | Val | Asp | Thr | Gln | Glu | Val | Leu | Ala | Met | Ala | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| Tyr | Asp | Ile | Pro | Ile | Pro | Gly | Tyr | Gly | Asn | Asp | Thr | Val | Asn | Ser | Leu | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| Arg | Leu | Trp | Gln | Ala | Gln | Ser | Pro | Arg | Gly | Phe | Glu | Phe | Ser | Tyr | Phe | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |
| Asn | His | Gly | Asn | Tyr | Ile | Gln | Ala | Ile | Glu | Asp | Ile | Ala | Leu | Ile | Glu | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | |
| Asn | Ile | Ser | Arg | Val | Leu | Tyr | Pro | Asn | Asp | Ser | Ile | Thr | Glu | Gly | Gln | | |
| | 275 | | | | | | 280 | | | | | 285 | | | | | |
| Glu | Leu | Arg | Leu | Lys | Gln | Glu | Tyr | Phe | Leu | Val | Ser | Ala | Thr | Ile | Gln | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| Asp | Ile | Ile | Arg | Arg | Tyr | Thr | Lys | Thr | His | Ile | Cys | Leu | Asp | Asn | Leu | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | |
| Ala | Asp | Lys | Val | Val | Val | Gln | Leu | Asn | Asp | Thr | His | Pro | Ala | Leu | Gly | | |
| | | | | 325 | | | | | 330 | | | | | 335 | | | |
| Ile | Ala | Glu | Met | Met | His | Ile | Leu | Val | Asp | Arg | Glu | Glu | Leu | Pro | Trp | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | |
| Asp | Lys | Ala | Trp | Glu | Met | Thr | Thr | Val | Ile | Phe | Asn | Tyr | Thr | Asn | His | | |
| | 355 | | | | | | 360 | | | | | 365 | | | | | |
| Thr | Ile | Leu | Pro | Glu | Ala | Leu | Glu | Arg | Trp | Pro | Leu | Asp | Leu | Phe | Ser | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | |
| Lys | Leu | Leu | Pro | Arg | His | Leu | Glu | Ile | Ile | Tyr | Glu | Ile | Asn | Ser | Arg | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | |
| Trp | Leu | Glu | Lys | Val | Gly | Ser | Arg | Tyr | Pro | Lys | Asn | Asp | Asp | Lys | Arg | | |
| | | | | 405 | | | | | 410 | | | | | 415 | | | |
| Arg | Ser | Leu | Ser | Ile | Val | Glu | Glu | Gly | Tyr | Gln | Lys | Arg | Ile | Asn | Met | | |
| | | | 420 | | | | | 425 | | | | | 430 | | | | |
| Ala | Asn | Leu | Ala | Val | Val | Gly | Ser | Ala | Lys | Val | Asn | Gly | Val | Ser | Ser | | |
| | 435 | | | | | | 440 | | | | | 445 | | | | | |
| Phe | His | Ser | Gln | Leu | Ile | Lys | Asp | Thr | Leu | Phe | Lys | Glu | Phe | Tyr | Glu | | |
| | 450 | | | | | 455 | | | | | 460 | | | | | | |
| Phe | Phe | Pro | Glu | Lys | Phe | Ile | Asn | Val | Thr | Asn | Gly | Val | Thr | Pro | Arg | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | |
| Arg | Trp | Ile | Ala | Leu | Cys | Asn | Pro | Arg | Leu | Ser | Lys | Leu | Leu | Asn | Glu | | |
| | | | | 485 | | | | | 490 | | | | | 495 | | | |
| Thr | Ile | Gly | Asp | Arg | Tyr | Ile | Ile | Asp | Leu | Ser | His | Leu | Ser | Leu | Ile | | |
| | | | 500 | | | | | 505 | | | | | 510 | | | | |
| Arg | Ser | Phe | Ala | Glu | Asp | Ser | Gly | Phe | Arg | Asp | His | Trp | Lys | Gly | Val | | |
| | 515 | | | | | | 520 | | | | | 525 | | | | | |
| Lys | Leu | Lys | Asn | Lys | Gln | Asp | Leu | Thr | Ser | Arg | Ile | Tyr | Asn | Glu | Val | | |
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| Gly | Glu | Ile | Val | Asp | Pro | Asn | Ser | Leu | Phe | Asp | Cys | His | Ile | Lys | Arg | | |
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| | | | | 565 | | | | | 570 | | | | | 575 | | | |
| Val | Tyr | Asn | Asp | Leu | Lys | Glu | Asn | Pro | Asn | Gln | Asp | Val | Val | Pro | Thr | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | |
| Thr | Val | Ile | Phe | Ser | Gly | Lys | Ala | Ala | Pro | Gly | Tyr | Val | Met | Ala | Lys | | |
| | 595 | | | | | | 600 | | | | | 605 | | | | | |
| Leu | Ile | Ile | Lys | Leu | Ile | Asn | Ser | Val | Ala | Asp | Val | Val | Asn | Gln | Asp | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | |
| Ser | Arg | Val | Asn | Asp | Lys | Leu | Lys | Val | Leu | Phe | Leu | Pro | Asn | Tyr | Arg | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | |
| Val | Ser | Met | Ala | Glu | His | Ile | Ile | Pro | Gly | Thr | Asp | Leu | Ser | Glu | Gln | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Asn | Asn | Asn | Lys | Pro | Ile | Arg | Val | His | Val | Thr | Ser | Val | Asp | Lys |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ala | Ala | Pro | Phe | Tyr | Lys | Glu | Lys | Gln | Met | Gln | Gln | Glu | Lys | Thr | Ala |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Tyr | Phe | Thr | Met | His | Tyr | Gly | Ser | Val | Asn | Pro | Glu | Met | Thr | Phe | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asn | Phe | Leu | Val | Thr | Pro | Glu | Asn | Asp | Leu | Pro | Phe | Arg | Val | Leu | Gln |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Glu | Phe | Thr | Lys | Ser | Pro | Asp | Glu | Asn | Gly | Gly | Val | Thr | Phe | Asn | Pro |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ile | Tyr | Leu | Phe | Gly | Pro | Glu | Gly | Ser | Gly | Lys | Thr | His | Leu | Met | Gln |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Ala | Ile | Ser | Val | Leu | Arg | Glu | Ser | Gly | Gly | Lys | Ile | Leu | Tyr | Val |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ser | Ser | Asp | Leu | Phe | Thr | Glu | His | Leu | Val | Ser | Ala | Ile | Arg | Ser | Gly |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Glu | Met | Gln | Lys | Phe | Arg | Ser | Phe | Tyr | Arg | Asn | Ile | Asp | Ala | Leu | Phe |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Ile | Glu | Asp | Ile | Glu | Val | Phe | Ser | Gly | Lys | Ser | Ala | Thr | Gln | Glu | Glu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Phe | Phe | His | Thr | Phe | Asn | Ser | Leu | His | Ser | Glu | Gly | Lys | Leu | Ile | Val |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Val | Ser | Ser | Ser | Tyr | Ala | Pro | Val | Asp | Leu | Val | Ala | Val | Glu | Asp | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Leu | Ile | Ser | Arg | Phe | Glu | Trp | Gly | Val | Ala | Ile | Pro | Ile | His | Pro | Leu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Val | Gln | Glu | Gly | Leu | Arg | Ser | Phe | Leu | Met | Arg | Gln | Val | Glu | Arg | Leu |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Ser | Ile | Arg | Ile | Gln | Glu | Thr | Ala | Leu | Asp | Phe | Leu | Ile | Tyr | Ala | Leu |
| | 290 | | | | | 295 | | | | 300 | | | | | |
| Ser | Ser | Asn | Val | Lys | Thr | Leu | Leu | His | Ala | Leu | Asn | Leu | Leu | Ala | Lys |
| 305 | | | | 310 | | | | | | 315 | | | | | 320 |
| Arg | Val | Met | Tyr | Lys | Lys | Leu | Ser | His | Gln | Leu | Leu | Tyr | Glu | Asp | Asp |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Val | Lys | Thr | Leu | Leu | Lys | Asp | Val | Leu | Glu | Ala | Ala | Gly | Ser | Val | Arg |
| | | 340 | | | | | | 345 | | | | | 350 | | |
| Leu | Thr | Pro | Leu | Lys | Ile | Ile | Arg | Asn | Val | Ala | Gln | Tyr | Tyr | Gly | Val |
| | 355 | | | | | | 360 | | | | | 365 | | | |
| Ser | Gln | Glu | Ser | Ile | Leu | Gly | Arg | Ser | Gln | Ser | Arg | Glu | Tyr | Val | Leu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Pro | Arg | Gln | Val | Ala | Met | Tyr | Phe | Cys | Arg | Gln | Lys | Leu | Ser | Leu | Ser |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Tyr | Val | Arg | Ile | Gly | Asp | Val | Phe | Ser | Arg | Asp | His | Ser | Thr | Val | Ile |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ser | Ser | Ile | Arg | Leu | Ile | Glu | Gln | Lys | Ile | Glu | Glu | Asn | Ser | His | Asp |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ile | His | Met | Ala | Ile | Gln | Asp | Ile | Ser | Lys | Asn | Leu | Asn | Ser | Leu | His |
| | | 435 | | | | | | 440 | | | | 445 | | | |
| Lys | Ser | Leu | Glu | Phe | Phe | Pro | Ser | Glu | Glu | Met | Ile | Ile | | | |
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<210> 312

<211> 808

<212> PRT

<213> Chlamydia pneumoniae

<400> 312

| | | | | | | | | | | | | | | | |
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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Arg | Thr | Leu | Leu | Phe | Val | Ser | Leu | Ile | Gly | Ile | Ala | Phe | Val | Gly | Cys |
| | | 20 | | | | | | 25 | | | | | 30 | | |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Gln | Ile | Phe | Phe | Gly | Tyr | Asn | Glu | Phe | Arg | Ser | Cys | Lys | Asn | Leu | Ala | | |
| | 35 | | | | | | 40 | | | | | 45 | | | | | |
| Glu | Lys | Gln | Arg | Lys | Ile | Ser | Glu | Gln | Thr | Leu | Ala | Ala | Val | Glu | Ser | | |
| | 50 | | | | | 55 | | | | | 60 | | | | | | |
| Val | Gly | Leu | Ser | Val | Ala | Ser | Trp | Asp | Thr | Asp | Val | Asn | Gly | Glu | Glu | | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | | |
| His | Lys | Asn | Asn | Tyr | Ala | Val | Arg | Val | Gly | Asp | Lys | Leu | Phe | Leu | Leu | | |
| | | | 85 | | | | | | 90 | | | | | 95 | | | |
| His | Asn | Gly | Glu | Ala | Ala | Gln | Ser | Val | Tyr | Ser | Ser | Gly | Glu | Ser | Trp | | |
| | | | 100 | | | | | 105 | | | | | 110 | | | | |
| Ser | Phe | Val | Asp | His | Lys | Cys | Gly | Phe | Asp | Asn | Ile | His | Leu | Ala | Leu | | |
| | 115 | | | | | | 120 | | | | | 125 | | | | | |
| Tyr | Arg | Gln | Gln | Gly | Ser | Ser | Phe | Asn | Pro | Thr | Asn | Thr | Gly | Lys | Val | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | |
| Phe | Leu | Pro | Thr | Asn | His | Glu | Gly | Leu | Pro | Val | Leu | Val | Val | Glu | Phe | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |
| Arg | Asn | Asn | Lys | Glu | Pro | Leu | Val | Phe | Leu | Gly | Glu | Tyr | Ala | Gln | Gly | | |
| | | | | 165 | | | | 170 | | | | | | 175 | | | |
| Arg | Ile | Ser | Asn | Lys | Asp | Ser | Thr | Ile | Phe | Gly | Thr | Ala | Leu | Val | Phe | | |
| | | | 180 | | | | | 185 | | | | | | 190 | | | |
| Trp | Arg | Ser | Gly | Ser | Asp | Tyr | Ile | Pro | Leu | Gly | Leu | Tyr | Asp | Ser | Arg | | |
| | 195 | | | | | 200 | | | | | | 205 | | | | | |
| Glu | Glu | Lys | Leu | Val | Ser | Leu | Asp | Leu | Pro | Ile | Thr | Arg | Ala | Val | Ile | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| Phe | Gly | Asn | Asp | Gln | Asp | Ser | Ala | Lys | Ser | Ser | Asp | Thr | Ala | Asn | His | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| Tyr | Val | Leu | Phe | Asn | Asp | Tyr | Met | Gln | Ile | Ile | Val | Ser | Glu | Glu | Ser | | |
| | | | | 245 | | | | 250 | | | | | | 255 | | | |
| Gly | Ser | Ile | Glu | Gly | Ile | Asn | Leu | Pro | Phe | Ala | Ser | Thr | Asn | Asn | Lys | | |
| | | | 260 | | | | | 265 | | | | | | 270 | | | |
| Ser | Ile | Val | Asn | Glu | Ile | Gly | Phe | Asp | Arg | Asp | Leu | Ala | Ser | Glu | Lys | | |
| | 275 | | | | | | 280 | | | | | 285 | | | | | |
| Ser | Pro | Glu | Ala | Leu | Phe | Pro | Gly | Leu | Ser | Ser | Lys | Leu | Pro | Asp | Gly | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| Gln | Gln | Ala | Lys | Asn | Ser | Ile | Gly | Gly | Tyr | Tyr | Pro | Leu | Leu | Arg | Arg | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | |
| Gly | Leu | Leu | Ser | Asp | Ser | Lys | Lys | Leu | Leu | Pro | Leu | Glu | Tyr | His | Ala | | |
| | | | | 325 | | | | 330 | | | | | | 335 | | | |
| Leu | Asn | Val | Val | Ser | Gly | Arg | Glu | Leu | Ala | Thr | Pro | Val | Ala | Leu | Arg | | |
| | | | 340 | | | | | 345 | | | | | | 350 | | | |
| Tyr | Arg | Val | Leu | Ser | Tyr | Thr | Pro | His | Ser | Ile | Gln | Leu | Glu | Ser | Leu | | |
| | | 355 | | | | 360 | | | | | | 365 | | | | | |
| Asp | Arg | Ser | Val | Gln | Lys | Val | Tyr | Lys | Leu | Pro | Glu | Asn | Pro | Glu | Glu | | |
| | 370 | | | | 375 | | | | | | 380 | | | | | | |
| Lys | Pro | Tyr | Val | Phe | Glu | Thr | Ala | Ile | Thr | Leu | Thr | Lys | Glu | Thr | Glu | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | |
| Asp | Val | Trp | Val | Thr | Ser | Gly | Val | Pro | Glu | Val | Glu | Ile | Met | Ser | Asn | | |
| | | | | 405 | | | | | 410 | | | | | 415 | | | |
| Ala | Ser | Ala | Pro | Thr | Ile | Lys | Tyr | Arg | Val | Ile | Lys | Lys | Asn | Lys | Gly | | |
| | | | 420 | | | | | 425 | | | | | 430 | | | | |
| Ser | Leu | Asp | Lys | Val | Lys | Leu | Pro | Lys | Val | Lys | Glu | Pro | Leu | Ala | Ile | | |
| | 435 | | | | | | 440 | | | | | 445 | | | | | |
| Arg | Arg | Gly | Val | Tyr | Pro | Gln | Trp | Ile | Leu | Asn | Ser | Asn | Gly | Tyr | Phe | | |
| | 450 | | | | | 455 | | | | | 460 | | | | | | |
| Gly | Ile | Ile | Leu | Thr | Pro | Leu | Ser | Glu | Ile | Ala | Ser | Gly | Tyr | Gly | Ser | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | |
| Leu | Tyr | Ile | Ser | Gly | Ser | Thr | Ala | Pro | Thr | Arg | Leu | Ser | Ala | Ile | Ser | | |
| | | | | 485 | | | | | 490 | | | | | 495 | | | |
| Pro | Lys | Asn | Gln | Leu | Tyr | Pro | Val | Ser | Lys | Tyr | Pro | Gly | Tyr | Glu | Thr | | |
| | | | 500 | | | | | 505 | | | | | | 510 | | | |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Leu | Leu | Pro | Leu | Pro | Lys | Asp | Ala | Gly | Thr | His | Arg | Phe | Leu | Val | Tyr | | |
| | | 515 | | | | | 520 | | | | | 525 | | | | | |
| Ala | Gly | Pro | Leu | Ala | Glu | Pro | Thr | Leu | Lys | Val | Leu | Asp | Lys | Thr | Ile | | |
| | 530 | | | | | 535 | | | | | 540 | | | | | | |
| Thr | Gln | Glu | Lys | Gly | Glu | Asn | Pro | Glu | Tyr | Leu | Asp | Ser | Ile | Ser | Phe | | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | | |
| Arg | Gly | Val | Phe | Ala | Phe | Ile | Thr | Ala | Pro | Phe | Ala | Ala | Leu | Leu | Phe | | |
| | | | 565 | | | | | | 570 | | | | | 575 | | | |
| Ile | Ile | Met | Lys | Phe | Phe | Lys | Leu | Val | Thr | Gly | Ser | Trp | Gly | Ile | Ser | | |
| | | 580 | | | | | | 585 | | | | | 590 | | | | |
| Ile | Ile | Leu | Leu | Thr | Val | Phe | Leu | Lys | Leu | Leu | Leu | Tyr | Pro | Leu | Asn | | |
| | 595 | | | | | | 600 | | | | | 605 | | | | | |
| Ala | Trp | Ser | Ile | Arg | Ser | Met | Arg | Arg | Met | Gln | Ile | Leu | Ser | Pro | Tyr | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | |
| Ile | Gln | Gln | Ile | Gln | Gln | Lys | Tyr | Lys | Asn | Glu | Pro | Lys | Arg | Ala | Gln | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | |
| Met | Glu | Ile | Met | Gly | Leu | Tyr | Lys | Thr | Asn | Lys | Val | Asn | Pro | Ile | Thr | | |
| | | | 645 | | | | | | 650 | | | | | 655 | | | |
| Gly | Cys | Leu | Pro | Leu | Leu | Ile | Gln | Leu | Pro | Phe | Leu | Ile | Ala | Met | Phe | | |
| | | 660 | | | | | | 665 | | | | | 670 | | | | |
| Asp | Leu | Leu | Lys | Ser | Ser | Phe | Leu | Leu | Arg | Gly | Ala | Ser | Phe | Ile | Pro | | |
| | 675 | | | | | | 680 | | | | | 685 | | | | | |
| Gly | Trp | Ile | Asp | Asn | Leu | Thr | Ala | Pro | Asp | Val | Leu | Phe | Ser | Trp | Gln | | |
| | 690 | | | | | 695 | | | | 700 | | | | | | | |
| Thr | Ser | Ile | Trp | Phe | Ile | Gly | Asn | Glu | Phe | His | Leu | Leu | Pro | Ile | Leu | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | |
| Leu | Gly | Ile | Val | Met | Phe | Leu | Gln | Gln | Lys | Val | Thr | Ser | Leu | His | Lys | | |
| | | | 725 | | | | | | 730 | | | | | 735 | | | |
| Lys | Gly | Pro | Val | Thr | Asp | Gln | Gln | Lys | Gln | Gln | Gln | Val | Met | Gly | Asn | | |
| | | 740 | | | | | | 745 | | | | | 750 | | | | |
| Met | Met | Ala | Ile | Leu | Phe | Thr | Ala | Met | Phe | Tyr | Asn | Phe | Pro | Ser | Gly | | |
| | 755 | | | | | | 760 | | | | 765 | | | | | | |
| Leu | Asn | Ile | Tyr | Trp | Leu | Ser | Ser | Met | Ile | Leu | Gly | Val | Val | Gln | Gln | | |
| | 770 | | | | | 775 | | | | 780 | | | | | | | |
| Trp | Ile | Thr | Asn | Lys | Ile | Leu | Asp | Ser | Lys | His | Leu | Lys | Asn | Glu | Val | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | |
| Val | Leu | Asn | Asn | Lys | Lys | His | Arg | | | | | | | | | | |
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<210> 313
 <211> 293
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | | | |
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| Val | Trp | Ser | Phe | Glu | Pro | Trp | Ser | Leu | Arg | Leu | Thr | Trp | Tyr | Gly | Val | | |
| | | | 20 | | | | | 25 | | | | | 30 | | | | |
| Phe | Phe | Thr | Val | Gly | Ile | Phe | Leu | Ala | Cys | Leu | Ser | Ala | Arg | Tyr | Leu | | |
| | | 35 | | | | | 40 | | | | | 45 | | | | | |
| Ala | Leu | Ser | Tyr | Tyr | Gly | Leu | Lys | Asp | His | Leu | Ser | Phe | Ser | Lys | Ser | | |
| | 50 | | | | | 55 | | | | 60 | | | | | | | |
| Gln | Leu | Arg | Val | Ala | Leu | Glu | Asn | Phe | Phe | Ile | Tyr | Ser | Ile | Leu | Phe | | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | | |
| Ile | Val | Pro | Gly | Ala | Arg | Leu | Ala | Tyr | Val | Ile | Phe | Tyr | Gly | Trp | Ser | | |
| | | | | 85 | | | | | 90 | | | | | 95 | | | |
| Phe | Tyr | Leu | Gln | His | Pro | Glu | Glu | Ile | Ile | Gln | Ile | Trp | His | Gly | Gly | | |
| | | | 100 | | | | | 105 | | | | | 110 | | | | |
| Leu | Ser | Ser | His | Gly | Gly | Val | Leu | Gly | Phe | Leu | Leu | Trp | Ala | Ala | Ile | | |
| | | 115 | | | | | 120 | | | | | | 125 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Ser | Trp | Ile | Tyr | Lys | Lys | Lys | Ile | Ser | Lys | Leu | Thr | Phe | Leu | Phe |
| 130 | | | | | | 135 | | | | | 140 | | | | |
| Leu | Thr | Asp | Leu | Cys | Gly | Ser | Val | Phe | Gly | Ile | Ala | Ala | Phe | Phe | Ile |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Arg | Leu | Gly | Asn | Phe | Trp | Asn | Gln | Glu | Ile | Val | Gly | Thr | Pro | Thr | Ser |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Leu | Pro | Trp | Gly | Val | Val | Phe | Ser | Asp | Pro | Met | Gln | Gly | Val | Gln | Gly |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Val | Pro | Val | His | Pro | Val | Gln | Leu | Tyr | Glu | Gly | Ile | Ser | Tyr | Leu | Val |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Val | Ser | Gly | Ile | Leu | Tyr | Phe | Leu | Ser | Tyr | Lys | Arg | Tyr | Leu | His | Leu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gly | Lys | Gly | Tyr | Val | Thr | Ser | Ile | Ala | Cys | Ile | Ser | Val | Ala | Phe | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Arg | Phe | Phe | Ala | Glu | Tyr | Val | Lys | Ser | His | Gln | Gly | Lys | Val | Leu | Ala |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Glu | Asp | Cys | Leu | Leu | Thr | Ile | Gly | Gln | Ile | Leu | Ser | Ile | Pro | Leu | Phe |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Phe | Gly | Val | Ala | Leu | Leu | Ile | Ile | Cys | Ser | Leu | Lys | Ala | Arg | Arg |
| | | 275 | | | | | 280 | | | | | | 285 | | |
| His | Arg | Ser | His | Ile | | | | | | | | | | | |
| | | | 290 | | | | | | | | | | | | |

<210> 314
 <211> 153
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 314 | | | | | | | | | | | | | | | |
| Cys | Thr | Met | Ala | Arg | Asn | Ile | Lys | Tyr | Phe | Leu | Ile | Leu | Phe | Pro | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Leu | Trp | Ile | Ser | Ala | Gly | Met | Lys | Leu | Leu | Leu | Lys | Ala | Thr | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ile | Ala | Leu | Asp | Pro | Leu | Ser | Ser | Phe | Phe | Thr | Tyr | Cys | Leu | Leu | Ser |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Met | Val | Ser | Trp | Gly | Leu | Ala | Ser | Leu | Lys | His | Arg | Tyr | Leu | Leu | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Lys | Thr | Ile | Arg | Lys | Gln | Leu | Ser | Leu | Ser | Ser | Glu | Phe | Phe | Ser | Gln |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Lys | Ile | Thr | Trp | Ile | Ala | Tyr | Ile | Lys | Gln | Thr | Phe | Ile | Ser | Arg | Arg |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Phe | Leu | Ile | Met | Val | Ile | Met | Ile | Ala | Phe | Ser | Leu | Val | Leu | Arg | Arg |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Tyr | Ile | Ser | Asn | Pro | Gln | Ala | Leu | Phe | Val | Ile | Arg | Ala | Thr | Val | Gly |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Tyr | Ala | Leu | Ile | Lys | Thr | Ala | Ile | Ala | Tyr | Phe | Ser | Lys | Leu | Gln | Asn |
| | | 130 | | | | 135 | | | | | 140 | | | | |
| Ala | Leu | Met | Glu | Asn | Pro | Glu | Gly | Asn | | | | | | | |
| 145 | | | | | | 150 | | | | | | | | | |

<210> 315
 <211> 133
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 315 | | | | | | | | | | | | | | | |
| Trp | Lys | Ile | Leu | Lys | Glu | Ile | Ser | Ala | Asn | Ser | Met | Glu | Ile | Ile | His |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Gly | Thr | Asp | Ile | Ile | Glu | Ile | Ser | Arg | Ile | Arg | Glu | Ala | Ile | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | His | Gly | Asn | Arg | Leu | Leu | Asn | Arg | Ile | Phe | Thr | Glu | Ala | Glu | Gln |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Lys | Tyr | Cys | Leu | Glu | Lys | Thr | Asp | Pro | Ile | Pro | Ser | Phe | Ala | Gly | Arg |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Phe | Ala | Gly | Lys | Glu | Ala | Val | Ala | Lys | Ala | Leu | Gly | Thr | Gly | Ile | Gly |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ser | Val | Val | Ala | Trp | Lys | Asp | Ile | Glu | Val | Phe | Lys | Val | Ser | His | Gly |
| | | | | 85 | | | | 90 | | | | | | 95 | |
| Pro | Glu | Val | Leu | Leu | Pro | Ser | His | Val | Tyr | Ala | Lys | Ile | Gly | Ile | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Lys | Val | Ile | Leu | Ser | Ile | Ser | His | Cys | Lys | Glu | Tyr | Ala | Thr | Ala | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ala | Ile | Ala | Leu | Ala | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 130 |

<210> 316

<211> 311

<212> PRT

<213> Chlamydia pneumoniae

<400> 316

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ile | His | Ser | Arg | Leu | Ile | Ile | Ile | Gly | Ser | Gly | Pro | Ser | Gly | Tyr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Thr | Ala | Ala | Ile | Tyr | Ala | Ser | Arg | Ala | Leu | Leu | His | Pro | Leu | Leu | Phe |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Gly | Phe | Phe | Ser | Gly | Ile | Ser | Gly | Gly | Gln | Leu | Met | Thr | Thr | Thr |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Glu | Val | Glu | Asn | Phe | Pro | Gly | Phe | Pro | Glu | Gly | Ile | Leu | Gly | Pro | Lys |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Leu | Met | Asn | Asn | Met | Lys | Glu | Gln | Ala | Val | Arg | Phe | Gly | Thr | Lys | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Ala | Gln | Asp | Ile | Ile | Ser | Val | Asp | Phe | Ser | Val | Arg | Pro | Phe | Ile |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Leu | Lys | Ser | Lys | Glu | Glu | Thr | Tyr | Ser | Cys | Asp | Ala | Cys | Ile | Ile | Ala |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Thr | Gly | Ala | Ser | Ala | Lys | Arg | Leu | Glu | Ile | Pro | Gly | Ala | Gly | Asn | Asp |
| | | | 115 | | | | 120 | | | | | 125 | | | |
| Glu | Phe | Trp | Gln | Lys | Gly | Val | Thr | Ala | Cys | Ala | Val | Cys | Asp | Gly | Ala |
| | | 130 | | | | 135 | | | | | 140 | | | | |
| Ser | Pro | Ile | Phe | Lys | Asn | Lys | Asp | Leu | Tyr | Val | Ile | Gly | Gly | Gly | Asp |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Ala | Leu | Glu | Glu | Ala | Leu | Tyr | Leu | Thr | Arg | Tyr | Gly | Ser | His | Val |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Tyr | Val | Val | His | Arg | Arg | Asp | Lys | Leu | Arg | Ala | Ser | Lys | Ala | Met | Glu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ala | Arg | Ala | Gln | Asn | Asn | Glu | Lys | Ile | Thr | Phe | Leu | Trp | Asn | Ser | Glu |
| | | | 195 | | | | 200 | | | | | 205 | | | |
| Ile | Val | Lys | Ile | Ser | Gly | Asp | Ser | Ile | Val | Arg | Ser | Val | Asp | Ile | Lys |
| | | | | | | 215 | | | | | | 220 | | | |
| Asn | Val | Gln | Thr | Gln | Glu | Ile | Thr | Thr | Arg | Glu | Ala | Ala | Gly | Val | Phe |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Phe | Ala | Ile | Gly | His | Lys | Pro | Asn | Thr | Asp | Phe | Leu | Gly | Gly | Gln | Leu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Thr | Leu | Asp | Glu | Ser | Gly | Tyr | Ile | Val | Thr | Glu | Lys | Gly | Thr | Ser | Lys |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Thr | Ser | Val | Pro | Gly | Val | Phe | Ala | Ala | Gly | Asp | Val | Gln | Asp | Lys | Tyr |
| | | | 275 | | | | 280 | | | | | 285 | | | |
| Tyr | Arg | Gln | Ala | Val | Thr | Ser | Ala | Gly | Ser | Gly | Cys | Ile | Ala | Ala | Leu |
| | | | | | | 295 | | | | | 300 | | | | |
| Asp | Ala | Glu | Arg | Phe | Leu | Gly | | | | | | | | | |
| 305 | | | | | | 310 | | | | | | | | | |

<210> 317
 <211> 580
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 317

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Lys | Gln | Ala | Glu | Tyr | Thr | Trp | Gly | Ser | Lys | Lys | Ile | Leu | Asp | 1 | 5 | 10 | 15 |
| Asn | Ile | Glu | Cys | Leu | Thr | Glu | Asp | Val | Ala | Glu | Phe | Lys | Asp | Leu | Leu | 20 | 25 | 30 | |
| Tyr | Thr | Ala | His | Arg | Ile | Thr | Ser | Ser | Glu | Glu | Glu | Ser | Asp | Asn | Glu | 35 | 40 | 45 | |
| Ile | Gln | Pro | Gly | Ala | Ile | Leu | Lys | Gly | Thr | Val | Val | Asp | Ile | Asn | Lys | 50 | 55 | 60 | |
| Asp | Phe | Val | Val | Val | Asp | Val | Gly | Leu | Lys | Ser | Glu | Gly | Val | Ile | Pro | 65 | 70 | 75 | 80 |
| Met | Ser | Glu | Phe | Ile | Asp | Ser | Ser | Glu | Gly | Leu | Val | Leu | Gly | Ala | Glu | 85 | 90 | 95 | |
| Val | Glu | Val | Tyr | Leu | Asp | Gln | Ala | Glu | Asp | Glu | Glu | Gly | Lys | Val | Val | 100 | 105 | 110 | |
| Leu | Ser | Arg | Glu | Lys | Ala | Thr | Arg | Gln | Arg | Gln | Trp | Glu | Tyr | Ile | Leu | 115 | 120 | 125 | |
| Ala | His | Cys | Glu | Glu | Gly | Ser | Ile | Val | Lys | Gly | Gln | Ile | Thr | Arg | Lys | 130 | 135 | 140 | |
| Val | Lys | Gly | Gly | Leu | Ile | Val | Asp | Ile | Gly | Met | Glu | Ala | Phe | Leu | Pro | 145 | 150 | 155 | 160 |
| Gly | Ser | Gln | Ile | Asp | Asn | Lys | Lys | Ile | Lys | Asn | Leu | Asp | Asp | Tyr | Val | 165 | 170 | 175 | |
| Gly | Lys | Val | Cys | Glu | Phe | Lys | Ile | Leu | Lys | Ile | Asn | Val | Glu | Arg | Arg | 180 | 185 | 190 | |
| Asn | Ile | Val | Ser | Arg | Arg | Glu | Leu | Leu | Glu | Ala | Glu | Arg | Ile | Ser | | 195 | 200 | 205 | |
| Lys | Lys | Ala | Glu | Leu | Ile | Glu | Gln | Ile | Ser | Ile | Gly | Glu | Tyr | Arg | Lys | 210 | 215 | 220 | |
| Gly | Val | Val | Lys | Asn | Ile | Thr | Asp | Phe | Gly | Val | Phe | Leu | Asp | Leu | Asp | 225 | 230 | 235 | 240 |
| Gly | Ile | Asp | Gly | Leu | Leu | His | Ile | Thr | Asp | Met | Thr | Trp | Lys | Arg | Ile | 245 | 250 | 255 | |
| Arg | His | Pro | Ser | Glu | Met | Val | Glu | Leu | Asn | Gln | Glu | Leu | Glu | Val | Ile | 260 | 265 | 270 | |
| Ile | Leu | Ser | Val | Asp | Lys | Glu | Lys | Gly | Arg | Val | Ala | Leu | Gly | Leu | Lys | 275 | 280 | 285 | |
| Gln | Lys | Glu | His | Asn | Pro | Trp | Glu | Asp | Ile | Glu | Lys | Lys | Tyr | Pro | Pro | 290 | 295 | 300 | |
| Gly | Lys | Arg | Val | Leu | Gly | Lys | Ile | Val | Lys | Leu | Leu | Pro | Tyr | Gly | Ala | 305 | 310 | 315 | 320 |
| Phe | Ile | Glu | Ile | Glu | Glu | Gly | Ile | Glu | Gly | Leu | Ile | His | Ile | Ser | Glu | 325 | 330 | 335 | |
| Met | Ser | Trp | Val | Lys | Asn | Ile | Val | Asp | Pro | Ser | Glu | Val | Val | Asn | Lys | 340 | 345 | 350 | |
| Gly | Asp | Glu | Val | Glu | Ala | Ile | Val | Leu | Ser | Ile | Gln | Lys | Asp | Glu | Gly | 355 | 360 | 365 | |
| Lys | Ile | Ser | Leu | Gly | Leu | Lys | Gln | Thr | Glu | Arg | Asn | Pro | Trp | Asp | Asn | 370 | 375 | 380 | |
| Ile | Glu | Glu | Lys | Tyr | Pro | Ile | Gly | Leu | His | Val | Asn | Ala | Glu | Ile | Lys | 385 | 390 | 395 | 400 |
| Asn | Leu | Thr | Asn | Tyr | Gly | Ala | Phe | Val | Glu | Leu | Glu | Pro | Gly | Ile | Glu | 405 | 410 | 415 | |
| Gly | Leu | Ile | His | Ile | Ser | Asp | Met | Ser | Trp | Ile | Lys | Lys | Val | Ser | His | 420 | 425 | 430 | |

Pro Ser Glu Leu Phe Lys Lys Gly Asn Ser Val Glu Ala Val Ile Leu
 435 440 445
 Ser Val Asp Lys Glu Ser Lys Lys Ile Thr Leu Gly Val Lys Gln Leu
 450 455 460
 Ser Ser Asn Pro Trp Asn Glu Ile Glu Ala Met Phe Pro Ala Gly Thr
 465 470 475 480
 Val Ile Ser Gly Val Val Thr Lys Ile Thr Ala Phe Gly Ala Phe Val
 485 490 495
 Glu Leu Gln Asn Gly Ile Glu Gly Leu Ile His Val Ser Glu Leu Ser
 500 505 510
 Asp Lys Pro Phe Ala Lys Ile Glu Asp Ile Ile Ser Ile Gly Glu Asn
 515 520 525
 Val Ser Ala Lys Val Ile Lys Leu Asp Pro Asp His Lys Lys Val Ser
 530 535 540
 Leu Ser Val Lys Glu Tyr Leu Ala Asp Asn Ala Tyr Asp Gln Asp Ser
 545 550 555 560
 Arg Thr Glu Leu Asp Phe Lys Asp Ser Gln Gly Pro Lys Glu Arg Lys
 565 570 575
 Lys Lys Gly Lys
 580

<210> 318
 <211> 446
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 318
 Leu Phe Thr Asp Phe Leu Ile Tyr Lys Pro Ser Ile Met Asn Lys Asn
 1 5 10 15
 Leu Val Ala Ile Phe Asp Tyr Met Glu Lys Glu Lys Gly Ile Gln Arg
 20 25 30
 Ser Thr Ile Ile Gly Ala Ile Glu Ser Ala Leu Lys Ile Ala Ala Lys
 35 40 45
 Lys Thr Leu Arg Asp Asp Ala Asn Ile Ser Val Asn Ile Asn Ser Arg
 50 55 60
 Thr Gly Asp Ile Glu Val Phe Cys Glu Lys Glu Ile Val Glu Ile Cys
 65 70 75 80
 Gln Asn Pro Ser Lys Glu Ile Pro Leu Asp Lys Ala Arg Glu Tyr Asp
 85 90 95
 Pro Asp Cys Gln Ile Gly Gln Tyr Met Asp Val Pro Phe Val Ser Asp
 100 105 110
 Asn Phe Gly Arg Ile Ala Ala His Ala Ala Arg Gln Ile Ile Gly Gln
 115 120 125
 Lys Leu Arg His Ala Glu Arg Asp Val Ile Tyr Glu Glu Tyr Arg His
 130 135 140
 Arg Val Asn Glu Thr Leu Ser Gly Val Val Lys Arg Phe Ala Lys Gly
 145 150 155 160
 Ser Asn Leu Ile Ile Asp Leu Gly Lys Val Glu Ala Ile Leu Pro Thr
 165 170 175
 Arg Phe Tyr Pro Lys Thr Glu Lys His Lys Ile Gly Asp Lys Ile Tyr
 180 185 190
 Ala Leu Leu Tyr Glu Val Gln Glu Ser Glu Asn Gly Gly Ala Glu Val
 195 200 205
 Ile Leu Ser Arg Ser His Ala Glu Phe Val Lys Gln Leu Phe Ile Gln
 210 215 220
 Glu Val Pro Glu Leu Glu Glu Gly Ser Val Glu Ile Val Lys Ile Ala
 225 230 235 240
 Arg Glu Ala Gly Tyr Arg Thr Lys Leu Ala Val Arg Ser Ser Asp Pro
 245 250 255
 Lys Thr Asp Pro Val Gly Ala Phe Val Gly Met Arg Gly Ser Arg Val
 260 265 270

Lys Asn Ile Ile Arg Glu Leu Asn Asp Glu Lys Ile Asp Ile Val Asn
 275 280 285
 Tyr Ser Pro Val Ser Thr Glu Leu Leu Gln Asn Leu Leu Tyr Pro Ile
 290 295 300
 Glu Ile Gln Lys Ile Ala Ile Leu Glu Asp Asp Lys Val Ile Ala Ile
 305 310 315 320
 Val Val Asn Asp Ala Asp Tyr Ala Thr Val Ile Gly Lys Arg Gly Ile
 325 330 335
 Asn Ala Arg Leu Ile Ser His Ile Leu Asp Tyr Glu Leu Glu Val Gln
 340 345 350
 Arg Met Ser Glu Tyr Asn Lys Leu Leu Glu Ile Gln Arg Leu Gln Leu
 355 360 365
 Ala Glu Phe Asp Ser Pro His Leu Asp Gln Pro Leu Glu Met Glu Gly
 370 375 380
 Ile Ser Lys Leu Val Ile Gln Asn Leu Glu His Ala Gly Tyr Asp Thr
 385 390 395 400
 Ile Arg Arg Val Leu Leu Ala Ser Ala Asn Asp Leu Ala Ser Val Pro
 405 410 415
 Gly Ile Ser Leu Glu Leu Ala Tyr Lys Ile Leu Glu Gln Val Ser Lys
 420 425 430
 Tyr Gly Glu Ser Lys Val Asp Glu Lys Pro Glu Ile Glu Asp
 435 440 445

<210> 319

<211> 902

<212> PRT

<213> Chlamydia pneumoniae

<400> 319

Ser Leu Leu Ile Arg Ser Leu Ser Lys Ser Ala Asn Met Glu Lys Val
 1 5 10 15
 Lys Leu Thr Lys Asn Leu Lys Leu Lys Ile Lys Asn Ala Gln Leu Thr
 20 25 30
 Lys Ala Ala Gly Leu Asp Lys Leu Lys Gln Lys Leu Ala Gln Ala Gly
 35 40 45
 Ser Ser Glu Ala Lys Ser Ser Ser Glu Lys Pro Ser Ala Lys Glu Lys
 50 55 60
 Ser Val Lys Val Ala Leu Ala Ala Thr Ser Thr Pro Thr Ala Ser Ala
 65 70 75 80
 Glu Gln Ala Ser Pro Glu Ser Thr Ser Arg Arg Ile Arg Ala Lys Asn
 85 90 95
 Arg Ser Ser Phe Ser Ser Ser Glu Glu Glu Ser Ser Ala His Ile Pro
 100 105 110
 Val Asp Thr Ser Glu Pro Ala Pro Val Ser Ile Ala Asp Pro Glu Pro
 115 120 125
 Glu Leu Glu Val Val Asp Glu Val Cys Asp Glu Ser Pro Glu Val His
 130 135 140
 Pro Val Ala Glu Val Leu Pro Glu Gln Pro Val Leu Pro Glu Thr Pro
 145 150 155 160
 Pro Gln Glu Lys Glu Leu Glu Pro Lys Pro Val Lys Pro Ala Glu Pro
 165 170 175
 Lys Ser Val Val Met Ile Lys Ser Lys Phe Gly Pro Thr Gly Lys His
 180 185 190
 Ile Asn His Leu Leu Ala Lys Thr Phe Lys Ala Pro Ala Lys Glu Glu
 195 200 205
 Lys Val Val Ala Gly Ser Lys Ser Thr Lys Pro Val Ala Ser Asp Lys
 210 215 220
 Thr Gly Lys Pro Gly Thr Ser Glu Gly Gly Glu Gln Asn Asn Arg Glu
 225 230 235 240
 Lys Gln Phe Asn Pro Ala Asn Arg Ser Pro Ala Ser Gly Pro Lys Arg
 245 250 255

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Asp | Ala | Gly | Lys | Lys | Asn | Leu | Thr | Asp | Phe | Arg | Asp | Arg | Ser | Lys | Lys | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | |
| Ser | Asp | Glu | Ser | Leu | Lys | Ala | Phe | Thr | Gly | Arg | Asp | Arg | Tyr | Gly | Leu | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | |
| Asn | Glu | Gly | Gly | Glu | Glu | Asp | Arg | Trp | Arg | Lys | Lys | Arg | Val | Tyr | Lys | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| Pro | Lys | Lys | His | Tyr | Asp | Glu | Ala | Ser | Ile | Gln | Arg | Pro | Thr | His | Ile | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | |
| Lys | Ile | Ser | Leu | Pro | Ile | Thr | Val | Lys | Asp | Leu | Ala | Ala | Glu | Met | Lys | | |
| | | | 325 | | | | | | 330 | | | | | 335 | | | |
| Leu | Lys | Ala | Ser | Glu | Val | Ile | Gln | Lys | Leu | Phe | Ile | His | Gly | Met | Thr | | |
| | | 340 | | | | | | 345 | | | | | 350 | | | | |
| Tyr | Val | Val | Asn | Asp | Ile | Leu | Asp | Ser | Glu | Thr | Ala | Val | Gln | Phe | Ile | | |
| | | 355 | | | | | 360 | | | | | 365 | | | | | |
| Gly | Leu | Glu | Phe | Gly | Cys | Thr | Ile | Asp | Ile | Asp | Tyr | Ser | Glu | Gln | Asp | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | |
| Lys | Leu | Cys | Leu | Ser | Asn | Asp | Thr | Val | Arg | Asp | Glu | Ile | Gln | Ser | Thr | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | |
| Asp | Pro | Ser | Lys | Leu | Val | Ile | Arg | Ser | Pro | Ile | Val | Ala | Phe | Met | Gly | | |
| | | | 405 | | | | | | 410 | | | | | 415 | | | |
| His | Val | Asp | His | Gly | Lys | Thr | Thr | Leu | Ile | Asp | Ser | Leu | Arg | Lys | Ser | | |
| | | 420 | | | | | | 425 | | | | | 430 | | | | |
| Asn | Val | Ala | Ala | Thr | Glu | Ala | Gly | Ala | Ile | Thr | Gln | His | Met | Gly | Ala | | |
| | 435 | | | | | | 440 | | | | | 445 | | | | | |
| Phe | Cys | Cys | Ser | Thr | Pro | Val | Gly | Asp | Ile | Thr | Ile | Leu | Asp | Thr | Pro | | |
| | 450 | | | | | 455 | | | | | 460 | | | | | | |
| Gly | His | Glu | Ala | Phe | Ser | Ala | Met | Arg | Ala | Arg | Gly | Ala | Glu | Val | Cys | | |
| 465 | | | | | 470 | | | | 475 | | | | | | 480 | | |
| Asp | Ile | Val | Val | Leu | Val | Val | Ala | Gly | Asp | Glu | Gly | Ile | Lys | Glu | Gln | | |
| | | | 485 | | | | | 490 | | | | | | 495 | | | |
| Thr | Leu | Glu | Ala | Ile | Glu | His | Ala | Lys | Ala | Ala | Asp | Ile | Ala | Ile | Val | | |
| | | 500 | | | | | | 505 | | | | | 510 | | | | |
| Val | Ala | Ile | Asn | Lys | Cys | Asp | Lys | Pro | Asn | Phe | Asn | Ser | Glu | Thr | Ile | | |
| | 515 | | | | | | 520 | | | | | 525 | | | | | |
| Tyr | Arg | Gln | Leu | Ser | Glu | Ile | Asn | Leu | Leu | Pro | Glu | Ala | Trp | Gly | Gly | | |
| | 530 | | | | | 535 | | | | | 540 | | | | | | |
| Ser | Thr | Val | Thr | Val | Asn | Thr | Ser | Ala | Lys | Thr | Gly | Glu | Gly | Leu | Ser | | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | | |
| Glu | Leu | Leu | Glu | Met | Leu | Ala | Leu | Gln | Ala | Glu | Val | Leu | Glu | Leu | Lys | | |
| | | | 565 | | | | | 570 | | | | | | 575 | | | |
| Ala | Asp | Pro | Ser | Ala | Arg | Ala | Arg | Gly | Leu | Val | Ile | Glu | Ser | Glu | Leu | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | |
| His | Lys | Gly | Leu | Gly | Pro | Val | Ala | Thr | Val | Leu | Ile | Gln | Asn | Gly | Ser | | |
| | 595 | | | | | 600 | | | | | | 605 | | | | | |
| Leu | Lys | Leu | Gly | Glu | Ala | Leu | Val | Phe | Asn | Asp | Cys | Tyr | Gly | Lys | Val | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | |
| Lys | Thr | Met | His | Asn | Glu | His | Asn | Glu | Leu | Met | Lys | Glu | Ala | Gly | Pro | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | |
| Ser | Ile | Pro | Val | Leu | Ile | Thr | Gly | Leu | Ser | Asp | Ile | Pro | Lys | Ala | Gly | | |
| | | | 645 | | | | | 650 | | | | | | 655 | | | |
| Asp | Pro | Phe | Phe | Val | Val | Lys | Asn | Glu | Lys | Thr | Ala | Arg | Asp | Ile | Ile | | |
| | | 660 | | | | | | 665 | | | | | 670 | | | | |
| Glu | Ala | Arg | Ser | Ala | Gly | Gln | Gln | Arg | Phe | Ala | Leu | Gln | Gln | Lys | Lys | | |
| | 675 | | | | | 680 | | | | | | 685 | | | | | |
| Arg | Pro | Asn | Phe | Asp | Ser | Met | Leu | Gln | Asn | Lys | Lys | Thr | Leu | Lys | Leu | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | |
| Met | Ile | Lys | Ala | Asp | Val | Gln | Gly | Ser | Ile | Glu | Ala | Leu | Val | Ser | Ser | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | |
| Ile | Ser | Lys | Ile | Lys | Ser | Glu | Lys | Val | Asp | Val | Glu | Ile | Leu | Thr | Asn | | |
| | | | 725 | | | | | 730 | | | | | | 735 | | | |

Ser Val Gly Glu Ile Ser Glu Ser Asp Ile Arg Leu Ala Ala Ser
 740 745 750
 Lys Ala Val Leu Ile Gly Phe His Thr Gly Ile Glu Ser His Ala Glu
 755 760 765
 Pro Leu Ile Lys Ser Leu Gly Val Arg Val Glu Leu Phe Thr Val Ile
 770 775 780
 Tyr His Ala Ile Asp Ala Ile Lys Glu Ile Met Thr Ser Leu Leu Asp
 785 790 795 800
 Pro Ile Ala Glu Glu Lys Asp Glu Gly Ser Ala Glu Ile Lys Glu Ile
 805 810 815
 Phe Arg Ser Ser Gln Val Gly Ser Ile Tyr Gly Cys Ile Val Thr Glu
 820 825 830
 Gly Ile Met Thr Arg Asn His Lys Val Arg Val Leu Arg Asn Lys Glu
 835 840 845
 Ile Leu Trp Lys Gly Thr Leu Ser Ser Leu Lys Arg Val Lys Glu Asp
 850 855 860
 Val Lys Glu Val Arg Lys Gly Leu Glu Cys Gly Ile Leu Leu Glu Gly
 865 870 875 880
 Tyr Gln Gln Ala Gln Ile Gly Asp Val Leu Gln Cys Tyr Glu Val Ile
 885 890 895
 Tyr His Pro Gln Lys Leu
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<210> 320
 <211> 141
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 320
 Val Met Ser Tyr Asn Val Met Lys Leu Ser Ile Ile His Lys Asn Tyr
 1 5 10 15
 Asn Leu Lys Tyr Cys Met Thr Glu Asn Arg Arg Ile Lys Arg Val Asn
 20 25 30
 Ala Leu Leu Gln Glu Ala Ile Ala Lys Val Ile Leu Lys Asp Val Lys
 35 40 45
 His Pro Lys Ile Ser Asn Leu Trp Ile Thr Val Thr Arg Val Ser Leu
 50 55 60
 Ser Lys Asp Leu His Ser Ala Arg Val Tyr Val Ser Val Met Pro His
 65 70 75 80
 Glu Asn Thr Lys Glu Glu Ala Leu Glu Ala Leu Lys Val Ser Ala Gly
 85 90 95
 Phe Ile Ala His Arg Ala Ser Lys Asn Val Val Leu Lys Tyr Phe Pro
 100 105 110
 Glu Leu His Phe Tyr Leu Asp Asp Ile Phe Ser Pro Gln Asp Tyr Ile
 115 120 125
 Glu Asn Leu Leu Trp Gln Ile Gln Glu Lys Glu Lys Ser
 130 135 140

<210> 321
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 <212> PRT
 <213> Chlamydia pneumoniae

<400> 321
 Thr Ile Phe Phe Glu Asn Leu Asn Thr Ile Lys Asp Met Thr Met Asp
 1 5 10 15
 Leu Ala Val Glu Leu Lys Glu Gly Ile Leu Leu Val Asp Lys Pro Gln
 20 25 30
 Gly Arg Thr Ser Phe Ser Leu Ile Arg Ala Leu Thr Lys Leu Ile Gly
 35 40 45

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Lys | Lys | Ile | Gly | His | Ala | Gly | Thr | Leu | Asp | Pro | Phe | Ala | Thr | Gly |
| 50 | | | | | | 55 | | | | | 60 | | | | |
| Val | Met | Val | Met | Leu | Ile | Gly | Arg | Lys | Phe | Thr | Arg | Leu | Ser | Asp | Ile |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Leu | Phe | Glu | Asp | Lys | Glu | Tyr | Glu | Ala | Ile | Ala | His | Leu | Gly | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Thr | Thr | Asp | Ser | Tyr | Asp | Cys | Asp | Gly | Lys | Val | Val | Gly | Arg | Ser | Lys |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Lys | Ile | Pro | Ser | Leu | Glu | Glu | Val | Leu | Ser | Ala | Ala | Glu | Tyr | Phe | Gln |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Glu | Ile | Gln | Gln | Leu | Pro | Pro | Met | Phe | Ser | Ala | Lys | Lys | Val | Gln |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gly | Lys | Lys | Leu | Tyr | Glu | Tyr | Ala | Arg | Lys | Gly | Leu | Ser | Ile | Glu | Arg |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| His | His | Ser | Thr | Val | Gln | Val | His | Leu | Gln | Ile | Thr | Lys | Tyr | Glu | Tyr |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Pro | Leu | Leu | His | Phe | Val | Val | Ser | Cys | Ser | Lys | Gly | Thr | Tyr | Ile | Arg |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ser | Ile | Ala | His | Glu | Leu | Gly | Thr | Met | Leu | Gly | Cys | Gly | Ala | Tyr | Leu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Glu | Gln | Leu | Arg | Arg | Leu | Arg | Ser | Gly | Arg | Phe | Ser | Ile | Asp | Glu | Cys |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ile | Asp | Gly | Asn | Leu | Leu | Asp | His | Pro | Asp | Phe | Asp | Ile | Ser | Pro | Tyr |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Arg | Asp | Ala | His | Gly | Asn | Ser | Leu | | | | | | | |
| | | | | 245 | | | | | | | | | | | |

<210> 322

<211> 320

<212> PRT

<213> Chlamydia pneumoniae

<400> 322

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Thr | Pro | Ile | Ser | Ile | Phe | Leu | Pro | Thr | Tyr | Glu | Met | Pro | Met | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Ala | Tyr | Ser | Leu | Thr | Ser | Ser | Phe | Ser | Val | Asp | Ser | Val | Thr | Val |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Gly | Phe | Phe | Asp | Gly | Cys | His | Leu | Gly | His | Ser | Asn | Leu | Leu | Ser | Ile |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Leu | Thr | Ser | Tyr | Ser | Gly | Ser | Ser | Gly | Val | Ile | Thr | Phe | Asp | Ser | His |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Pro | Gln | Thr | Val | Leu | Ser | Leu | Asn | His | Thr | Lys | Leu | Ile | Asn | Thr | Lys |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Glu | Glu | Arg | Leu | Gln | Leu | Leu | Gln | Thr | Phe | Pro | Ile | Asp | Trp | Leu | Gly |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Val | Leu | Thr | Phe | Asp | Leu | Asn | Phe | Ala | Asn | Gln | Ser | Ala | Glu | Glu | Phe |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Thr | Leu | Leu | His | Arg | Asn | Leu | Lys | Cys | Lys | Arg | Leu | Ile | Leu | Gly |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Tyr | Asp | Ser | Cys | Ile | Gly | Lys | Glu | Gln | Gln | Ser | Asn | Thr | Glu | Ala | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asp | Thr | Ile | Gly | Lys | Pro | Leu | Gly | Ile | Glu | Val | Ile | Lys | Ile | Pro | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Tyr | Arg | Met | Asp | Asn | Ile | Val | Val | Ser | Ser | Lys | Ala | Ile | Arg | Gln | Phe |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Ser | Ala | Gly | Asn | Leu | Glu | Cys | Ala | His | Arg | Phe | Leu | Gly | His | Pro |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Tyr | Ala | Ile | Ser | Gly | Lys | Ile | Thr | Glu | Gly | Ser | Gly | Ile | Gly | Gly | Ser |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Leu | Gly | Phe | Ala | Thr | Ile | Asn | Leu | Pro | Arg | Glu | Glu | Ser | Leu | Ile | Pro |
| | 210 | | | | | 215 | | | | | 220 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Gly | Val | Tyr | Ala | Cys | Glu | Ile | Arg | Tyr | Asp | Ser | Thr | Thr | Cys | Gln |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Gly | Val | Met | Asn | Leu | Gly | Thr | Ala | Pro | Thr | Phe | Gly | Arg | Glu | Ser | Leu |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Tyr | Ala | Glu | Ala | His | Ile | Phe | Ser | Phe | Ala | Glu | Asn | Leu | Tyr | Gly | Lys |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Glu | Val | Ser | Ile | Ile | Pro | Arg | Lys | Phe | Leu | Arg | Glu | Glu | Lys | Lys | Phe |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Gln | Ser | Lys | Glu | Thr | Leu | Ile | Arg | Ala | Ile | Glu | Lys | Asp | Ile | Leu | Asp |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ala | Gln | Asp | Trp | Phe | Ala | Lys | Gly | Ser | Phe | Asn | Tyr | Glu | Gly | Thr | Ala |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |

<210> 323

<211> 378

<212> PRT

<213> Chlamydia pneumoniae

<400> 323

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Ser | Lys | Lys | His | Val | Ile | Ile | Phe | Ile | Phe | Arg | Cys | Leu | Met | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| His | Thr | Glu | Cys | Gly | Ile | Val | Gly | Leu | Pro | Asn | Val | Gly | Lys | Ser | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Phe | Asn | Ala | Leu | Thr | Gly | Ala | Gln | Val | Ala | Ser | Cys | Asn | Tyr | Pro |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Phe | Cys | Thr | Ile | Asp | Pro | Asn | Val | Gly | Ile | Val | Pro | Val | Ile | Asp | Glu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Arg | Leu | Glu | Ala | Leu | Ala | Lys | Ile | Ser | Asn | Ser | Gln | Lys | Ile | Ile | Tyr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ala | Asp | Met | Lys | Phe | Val | Asp | Ile | Ala | Gly | Leu | Val | Lys | Gly | Ala | Ser |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Asp | Gly | Ala | Gly | Leu | Gly | Asn | Arg | Phe | Leu | Ser | His | Ile | Arg | Glu | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| His | Ala | Ile | Ala | His | Val | Val | Arg | Cys | Phe | Asp | Asp | Pro | Asp | Val | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| His | Val | Ser | Gly | Lys | Val | Asn | Pro | Val | Glu | Asp | Ile | Glu | Val | Ile | Asn |
| | | 130 | | | | 135 | | | | | 140 | | | | |
| Leu | Glu | Leu | Ile | Phe | Ser | Asp | Phe | Ser | Ser | Ala | Lys | Asn | Ile | His | Ser |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Lys | Leu | Glu | Lys | Leu | Ala | Lys | Gly | Lys | Arg | Glu | Val | Gly | Ala | Leu | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Pro | Leu | Phe | Asp | Thr | Ile | Ile | Ala | His | Leu | Glu | Lys | Gly | Leu | Pro | Leu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Arg | Thr | Leu | Glu | Leu | Thr | Pro | Glu | Gln | Ile | Val | Ala | Leu | Lys | Pro | Tyr |
| | | 195 | | | | 200 | | | | | | 205 | | | |
| Pro | Phe | Leu | Thr | Met | Lys | Pro | Met | Phe | Tyr | Ile | Ala | Asn | Val | Asp | Glu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ser | Ser | Leu | Pro | Asp | Met | Asp | Asn | Asp | Tyr | Val | Ala | Ala | Val | Arg | Glu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Val | Ala | Ala | Lys | Glu | Asn | Ser | Lys | Val | Val | Pro | Ile | Cys | Val | Arg | Ile |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Glu | Glu | Glu | Ile | Val | Ser | Leu | Pro | Ile | Glu | Glu | Arg | Leu | Glu | Phe | Leu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Met | Ser | Leu | Gly | Leu | Glu | Lys | Ser | Gly | Leu | His | Arg | Leu | Val | Arg | Ala |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ala | Tyr | Asp | Thr | Leu | Gly | Leu | Ile | Ser | Tyr | Phe | Thr | Thr | Gly | Pro | Gln |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Glu | Ser | Arg | Ala | Trp | Thr | Val | Val | Arg | Gly | Ser | Ser | Ala | Trp | Glu | Ala |
| 305 | | | | 310 | | | | | | 315 | | | | | 320 |
| Ala | Gly | Glu | Ile | His | Thr | Asp | Ile | Gln | Lys | Gly | Phe | Ile | Arg | Ala | Glu |
| | | | | 325 | | | | | 330 | | | | | 335 | |

Val Ile Thr Phe Glu Asp Met Ile Glu Cys Gln Gly Arg Ala Ala Ala
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 Arg Glu Leu Gly Lys Leu His Ile Glu Gly Arg Asp Tyr Ile Val Gln
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 Asp Gly Asp Thr Met Leu Phe Leu His Asn
 370 375

<210> 324
 <211> 366
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 324
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 Lys Arg Leu Arg Asp Ala Arg Lys Lys Gly Gln Val Ala Lys Ser Gln
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 Asp Phe Pro Ser Ala Val Thr Phe Ile Val Ser Met Phe Thr Ala Phe
 35 40 45
 Ser Leu Ser Thr Phe Phe Phe Lys His Leu Gly Gly Phe Leu Val Ser
 50 55 60
 Met Leu Ser Gln Ala Pro Thr Arg His Asp Pro Val Ile Thr Leu Phe
 65 70 75 80
 Tyr Leu Lys Asn Cys Leu Met Leu Ile Leu Thr Ala Ser Leu Pro Leu
 85 90 95
 Leu Gly Ala Val Ala Val Val Gly Val Ile Val Gly Phe Leu Ile Val
 100 105 110
 Gly Pro Thr Phe Ser Thr Glu Val Phe Lys Pro Asp Ile Lys Lys Phe
 115 120 125
 Asn Pro Ile Glu Asn Ile Lys Gln Lys Phe Lys Ile Lys Thr Leu Ile
 130 135 140
 Glu Leu Ile Lys Ser Ile Leu Lys Ile Phe Gly Ala Ala Leu Ile Leu
 145 150 155 160
 Tyr Ile Thr Leu Lys Ser Lys Val Ser Leu Ile Ile Glu Thr Ala Gly
 165 170 175
 Val Ser Pro Ile Ile Thr Ala Gln Ile Phe Lys Glu Ile Phe Tyr Lys
 180 185 190
 Ala Val Thr Ser Ile Gly Ile Phe Phe Leu Ile Val Ala Ile Leu Asp
 195 200 205
 Leu Val Tyr Gln Arg His Asn Phe Ala Lys Glu Leu Lys Met Glu Lys
 210 215 220
 Phe Glu Val Lys Gln Glu Phe Lys Asp Thr Glu Gly Asn Pro Glu Ile
 225 230 235 240
 Lys Gly Arg Arg Arg Gln Ile Ala Gln Glu Ile Ala Tyr Glu Asp Ser
 245 250 255
 Ser Ser Gln Val Lys His Ala Ser Thr Val Val Ser Asn Pro Lys Asp
 260 265 270
 Ile Ala Val Ala Ile Gly Tyr Met Pro Glu Lys Tyr Lys Ala Pro Trp
 275 280 285
 Ile Ile Ala Met Gly Ile Asn Leu Arg Ala Lys Arg Ile Leu Asp Glu
 290 295 300
 Ala Glu Lys Tyr Gly Ile Pro Ile Met Arg Asn Val Pro Leu Ala His
 305 310 315 320
 Gln Leu Leu Asp Glu Gly Lys Glu Leu Lys Phe Ile Pro Glu Ser Thr
 325 330 335
 Tyr Glu Ala Ile Gly Glu Ile Leu Leu Tyr Ile Thr Ser Leu Asn Ala
 340 345 350
 Gln Asn Pro Asn Asn Lys Asn Thr Asn Gln Pro Asp His Leu
 355 360 365

<210> 325
 <211> 713
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 325

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Phe | Ile | Met | Asn | Lys | Leu | Leu | Asn | Phe | Val | Ser | Arg | Thr | Leu | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Asp | Thr | Ala | Leu | Asn | Met | Ile | Asn | Lys | Ser | Ser | Asp | Leu | Ile | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Leu | Trp | Met | Met | Gly | Val | Val | Leu | Met | Ile | Ile | Ile | Pro | Leu | Pro |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Pro | Pro | Ile | Val | Asp | Leu | Met | Ile | Thr | Ile | Asn | Leu | Ser | Ile | Ser | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Phe | Leu | Leu | Met | Val | Ala | Leu | Tyr | Ile | Pro | Ser | Ala | Leu | Gln | Leu | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Val | Phe | Pro | Ser | Leu | Leu | Leu | Ile | Thr | Thr | Met | Phe | Arg | Leu | Gly | Ile |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Asn | Ile | Ser | Ser | Ser | Arg | Gln | Ile | Leu | Leu | Lys | Ala | Tyr | Ala | Gly | His |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Ile | Gln | Ala | Phe | Gly | Asp | Phe | Val | Val | Gly | Gly | Asn | Tyr | Val | Val |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Phe | Ile | Ile | Phe | Leu | Ile | Ile | Thr | Ile | Ile | Gln | Phe | Ile | Val | Val |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Thr | Lys | Gly | Ala | Glu | Arg | Val | Ala | Glu | Val | Ala | Ala | Arg | Phe | Arg | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asp | Ala | Met | Pro | Gly | Lys | Gln | Met | Ala | Ile | Asp | Ala | Asp | Leu | Arg | Ala |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Gly | Met | Ile | Asp | Ala | Thr | Gln | Ala | Arg | Asp | Lys | Arg | Ala | Gln | Ile | Gln |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Lys | Glu | Ser | Glu | Leu | Tyr | Gly | Ala | Met | Asp | Gly | Ala | Met | Lys | Phe | Ile |
| | 195 | | | | | 200 | | | | | 205 | | | | |
| Lys | Gly | Asp | Val | Ile | Ala | Gly | Ile | Val | Ile | Ser | Leu | Ile | Asn | Ile | Val |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gly | Gly | Leu | Thr | Ile | Gly | Val | Ala | Met | His | Gly | Met | Asp | Leu | Ala | Gln |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ala | Ala | His | Val | Tyr | Thr | Leu | Leu | Ser | Ile | Gly | Asp | Gly | Leu | Val | Ser |
| | | | 245 | | | | | 250 | | | | | | 255 | |
| Gln | Ile | Pro | Ser | Leu | Leu | Ile | Ala | Leu | Thr | Ala | Gly | Ile | Val | Thr | Thr |
| | | 260 | | | | | 265 | | | | | | 270 | | |
| Arg | Val | Ser | Ser | Asp | Lys | Asn | Thr | Asn | Leu | Gly | Lys | Glu | Ile | Ser | Thr |
| | 275 | | | | | 280 | | | | | | 285 | | | |
| Gln | Leu | Val | Lys | Glu | Pro | Arg | Ala | Leu | Leu | Leu | Ala | Gly | Ala | Ala | Thr |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Leu | Gly | Val | Gly | Phe | Phe | Lys | Gly | Phe | Pro | Leu | Trp | Ser | Phe | Ser | Ile |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Leu | Ala | Leu | Ile | Phe | Val | Ala | Leu | Gly | Ile | Leu | Leu | Leu | Thr | Lys | Lys |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ser | Ala | Ala | Gly | Lys | Lys | Gly | Gly | Gly | Ser | Gly | Ala | Ser | Thr | Thr | Val |
| | | 340 | | | | | | 345 | | | | | 350 | | |
| Gly | Ala | Ala | Gly | Asp | Gly | Ala | Ala | Thr | Val | Gly | Asp | Asn | Pro | Asp | Asp |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Tyr | Ser | Leu | Thr | Leu | Pro | Val | Ile | Leu | Glu | Leu | Gly | Lys | Asp | Leu | Ser |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Lys | Leu | Ile | Gln | His | Lys | Thr | Lys | Ser | Gly | Gln | Ser | Phe | Val | Asp | Asp |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Met | Ile | Pro | Lys | Met | Arg | Gln | Ala | Leu | Tyr | Gln | Asp | Ile | Gly | Ile | Arg |
| | | | 405 | | | | | | 410 | | | | | 415 | |
| Tyr | Pro | Gly | Ile | His | Val | Arg | Thr | Asp | Ser | Pro | Ser | Leu | Glu | Gly | Tyr |
| | | | 420 | | | | | 425 | | | | | 430 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Tyr | Met | Ile | Leu | Leu | Asn | Glu | Val | Pro | Tyr | Val | Arg | Gly | Lys | Ile |
| | 435 | | | | | | 440 | | | | | 445 | | | |
| Pro | Pro | His | His | Val | Leu | Thr | Asn | Glu | Val | Glu | Asp | Asn | Leu | Ser | Arg |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Tyr | Asn | Leu | Pro | Phe | Ile | Thr | Tyr | Lys | Asn | Ala | Ala | Gly | Leu | Pro | Ser |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Ala | Trp | Val | Ser | Glu | Asp | Ala | Lys | Ala | Ile | Leu | Glu | Lys | Ala | Ala | Ile |
| | | | | 485 | | | | | 490 | | | | | | 495 |
| Lys | Tyr | Trp | Thr | Pro | Leu | Glu | Val | Ile | Ile | Leu | His | Leu | Ser | Tyr | Phe |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Phe | His | Lys | Ser | Ser | Gln | Glu | Phe | Leu | Gly | Ile | Gln | Glu | Val | Arg | Ser |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Met | Ile | Glu | Phe | Met | Glu | Arg | Ser | Phe | Pro | Asp | Leu | Val | Lys | Glu | Val |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Thr | Arg | Leu | Ile | Pro | Leu | Gln | Lys | Leu | Thr | Glu | Ile | Phe | Lys | Arg | Leu |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Val | Gln | Glu | Gln | Ile | Ser | Ile | Lys | Asp | Leu | Arg | Thr | Ile | Leu | Glu | Ser |
| | | | | 565 | | | | 570 | | | | | | 575 | |
| Leu | Ser | Glu | Trp | Ala | Gln | Thr | Glu | Lys | Asp | Thr | Val | Leu | Leu | Thr | Glu |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Tyr | Val | Arg | Ser | Ser | Leu | Lys | Leu | Tyr | Ile | Ser | Phe | Lys | Phe | Ser | Gln |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Gly | Gln | Ser | Ala | Ile | Ser | Val | Tyr | Leu | Leu | Asp | Pro | Glu | Ile | Glu | Glu |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Met | Ile | Arg | Gly | Ala | Ile | Lys | Gln | Thr | Ser | Ala | Gly | Ser | Tyr | Leu | Ala |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Leu | Asp | Pro | Asp | Ser | Val | Asn | Leu | Ile | Leu | Lys | Ser | Met | Arg | Asn | Thr |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Ile | Thr | Pro | Thr | Pro | Ala | Gly | Gly | Gln | Pro | Pro | Val | Leu | Leu | Thr | Ala |
| | | 660 | | | | | | 665 | | | | | 670 | | |
| Ile | Asp | Val | Arg | Arg | Tyr | Val | Arg | Lys | Leu | Ile | Glu | Thr | Glu | Phe | Pro |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Asp | Ile | Ala | Val | Ile | Ser | Tyr | Gln | Glu | Ile | Leu | Pro | Glu | Ile | Arg | Ile |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Gln | Pro | Leu | Gly | Arg | Ile | Gln | Ile | Phe | | | | | | | |
| 705 | | | | | 710 | | | | | | | | | | |

<210> 326
 <211> 407
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 326 | | | | | | | | | | | | | | | |
| Tyr | Val | Val | Ala | His | Arg | Arg | His | Met | Ala | Ala | Ser | Gly | Gly | Thr | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Leu | Gly | Gly | Thr | Gln | Gly | Val | Asn | Leu | Ala | Ala | Val | Glu | Ala | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Ala | Lys | Ala | Asp | Ala | Ala | Glu | Val | Val | Ala | Ser | Gln | Glu | Gly | Ser |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Glu | Met | Asn | Met | Ile | Gln | Gln | Ser | Gln | Asp | Leu | Thr | Asn | Pro | Ala | Ala |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ala | Thr | Arg | Thr | Lys | Lys | Lys | Glu | Glu | Lys | Phe | Gln | Thr | Leu | Glu | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Arg | Lys | Lys | Gly | Glu | Ala | Gly | Lys | Ala | Glu | Lys | Lys | Ser | Glu | Ser | Thr |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Glu | Glu | Lys | Pro | Asp | Thr | Asp | Leu | Ala | Asp | Lys | Tyr | Ala | Ser | Gly | Asn |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Glu | Ile | Ser | Gly | Gln | Glu | Leu | Arg | Gly | Leu | Arg | Asp | Ala | Ile | Gly |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Asp | Asp | Ala | Ser | Pro | Glu | Asp | Ile | Leu | Ala | Leu | Val | Gln | Glu | Lys | Ile |
| | 130 | | | | | 135 | | | | | | 140 | | | |

Lys Asp Pro Ala Leu Gln Ser Thr Ala Leu Asp Tyr Leu Val Gln Thr
 145 150 155 160
 Thr Pro Pro Ser Gln Gly Lys Leu Lys Glu Ala Leu Ile Gln Ala Arg
 165 170 175
 Asn Thr His Thr Glu Gln Phe Gly Arg Thr Ala Ile Gly Ala Lys Asn
 180 185 190
 Ile Leu Phe Ala Ser Gln Glu Tyr Ala Asp Gln Leu Asn Val Ser Pro
 195 200 205
 Ser Gly Leu Arg Ser Leu Tyr Leu Glu Val Thr Gly Asp Thr His Thr
 210 215 220
 Cys Asp Gln Leu Leu Ser Met Leu Gln Asp Arg Tyr Thr Tyr Gln Asp
 225 230 235 240
 Met Ala Ile Val Ser Ser Phe Leu Met Lys Gly Met Ala Thr Glu Leu
 245 250 255
 Lys Arg Gln Gly Pro Tyr Val Pro Ser Ala Gln Leu Gln Val Leu Met
 260 265 270
 Thr Glu Thr Arg Asn Leu Gln Ala Val Leu Thr Ser Tyr Asp Tyr Phe
 275 280 285
 Glu Ser Arg Val Pro Ile Leu Leu Asp Ser Leu Lys Ala Glu Gly Ile
 290 295 300
 Gln Thr Pro Ser Asp Leu Asn Phe Val Lys Val Ala Glu Ser Tyr His
 305 310 315 320
 Lys Ile Ile Asn Asp Lys Phe Pro Thr Ala Ser Lys Val Glu Arg Glu
 325 330 335
 Val Arg Asn Leu Ile Gly Asp Asp Val Asp Ser Val Thr Gly Val Leu
 340 345 350
 Asn Leu Phe Phe Ser Ala Leu Arg Gln Thr Ser Ser Arg Leu Phe Ser
 355 360 365
 Ser Ala Asp Lys Arg Gln Gln Leu Gly Ala Met Ile Ala Asn Ala Leu
 370 375 380
 Asp Ala Val Asn Ile Asn Asn Glu Asp Tyr Pro Lys Ala Ser Asp Phe
 385 390 395 400
 Pro Lys Pro Tyr Pro Trp Ser
 405

<210> 327

<211> 151

<212> PRT

<213> *Chlamydia pneumoniae*

<400> 327

Lys Arg Ile Ala Met Gln Asn Gln Tyr Glu Gln Leu Leu Glu Ser Leu
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 Ala Pro Leu Leu Asn Thr Thr Leu Ala Pro Asp Lys Asn Asn Ser Cys
 20 25 30
 Leu Ile Arg Phe Ser Asp Thr His Val Pro Val Gln Ile Glu Glu Asp
 35 40 45
 Gly Asn Ser Gly Asp Leu Ala Val Ser Thr Leu Leu Gly Thr Leu Pro
 50 55 60
 Glu Asn Val Phe Arg Glu Arg Ile Phe Lys Ala Ala Leu Ser Val Asn
 65 70 75 80
 Gly Ser Phe Gln Ser Ser Ile Lys Gly Ile Leu Gly Tyr Gly Glu Val
 85 90 95
 Thr Gln Gln Leu Tyr Leu Ser Asp Ile Leu Ser Met Asn Tyr Leu Asn
 100 105 110
 Gly Glu Lys Leu Phe Glu Tyr Leu Lys Leu Phe Ser Leu His Ala Lys
 115 120 125
 Ile Trp Met Glu Ser Leu Arg Thr Gly Asn Leu Pro Asp Leu His Val
 130 135 140
 Leu Gly Ile Tyr Tyr Val Ala
 145 150

<210> 328
 <211> 536
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 328
 Pro Ser Cys Phe Gly Asn Leu Leu Arg Arg Val Asn Val Leu Lys Tyr
 1 5 10 15
 Thr Lys His Ser Pro Ser Ala His Ala Trp Lys Leu Ile Gly Thr Ser
 20 25 30
 Pro Lys His Gly Ile Tyr Leu Pro Leu Phe Ser Ile His Thr Lys Asn
 35 40 45
 Ser Cys Gly Ile Gly Glu Phe Leu Asp Leu Ile Pro Leu Ile Ser Trp
 50 55 60
 Cys Gln Lys Gln Gly Phe Ser Val Ile Gln Leu Leu Pro Leu Asn Asp
 65 70 75 80
 Thr Gly Glu Asp Thr Ser Pro Tyr Asn Ser Ile Ser Ser Val Ala Leu
 85 90 95
 Asn Pro Leu Phe Leu Ser Leu Ser Ser Leu Pro Asn Ile Asp Thr Ile
 100 105 110
 Pro Glu Val Ala Lys Lys Leu Gln Asp Met His Glu Leu Cys Ser Thr
 115 120 125
 Pro Ser Val Ser Tyr Thr Gln Val Lys Glu Lys Lys Trp Ala Phe Leu
 130 135 140
 Arg Glu Tyr Tyr Gln Lys Cys Cys Lys Ser Ser Leu Glu Gly Asn Ser
 145 150 155 160
 Asn Phe Ser Glu Phe Leu Glu Ser Glu Arg Tyr Trp Leu Tyr Pro Tyr
 165 170 175
 Gly Thr Phe Arg Ala Ile Lys His His Met His Gly Glu Pro Ile Asn
 180 185 190
 Asn Trp Pro Lys Ser Leu Thr Asp Gln Glu Asn Phe Pro Asp Leu Thr
 195 200 205
 Lys Lys Phe His Asp Glu Val Leu Phe Phe Ser Tyr Leu Gln Phe Leu
 210 215 220
 Cys Tyr Gln Gln Leu Cys Glu Val Lys Ala Tyr Ala Asp Gln His His
 225 230 235 240
 Val Leu Leu Lys Gly Asp Leu Pro Ile Leu Ile Ser Lys Asp Ser Cys
 245 250 255
 Asp Val Trp Tyr Phe Arg Asp Tyr Phe Ser Ser Ser Arg Ser Val Gly
 260 265 270
 Ala Pro Pro Asp Leu Tyr Asn Ser Glu Gly Gln Asn Trp His Leu Pro
 275 280 285
 Ile Tyr Asn Phe Ser Gln Leu Ala Lys Asp Asp Tyr Ile Trp Trp Lys
 290 295 300
 Glu Arg Leu Arg Tyr Ala Gln Asn Phe Tyr Ser Val Tyr Arg Leu Asp
 305 310 315 320
 His Ile Ile Gly Phe Phe Arg Leu Trp Ile Trp Asp Ser Ser Gly Arg
 325 330 335
 Gly Arg Phe Ile Pro Asp Asn Pro Lys Asp Tyr Ile Lys Gln Gly Thr
 340 345 350
 Glu Ile Leu Ser Thr Met Leu Gly Ala Ser Ser Met Leu Pro Ile Gly
 355 360 365
 Glu Asp Leu Gly Ile Ile Pro Gln Asp Val Lys Thr Thr Leu Thr His
 370 375 380
 Leu Gly Ile Cys Gly Thr Arg Ile Pro Arg Trp Glu Arg Asn Trp Glu
 385 390 395 400
 Ser Asp Ser Ala Phe Ile Pro Leu Lys Asp Tyr Asn Pro Leu Ser Val
 405 410 415
 Thr Thr Leu Ser Thr His Asp Ser Asp Thr Phe Ala Gln Trp Trp Leu
 420 425 430

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ser | Pro | Lys | Glu | Ala | Lys | Gln | Phe | Ala | Lys | Phe | Leu | His | Leu | Pro |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Phe | Gln | Lys | Thr | Leu | Thr | Thr | Glu | Thr | Gln | Ile | Asp | Ile | Leu | Lys | Leu |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Ser | His | Glu | Ser | Ala | Ser | Ile | Phe | His | Ile | Asn | Leu | Phe | Asn | Asp | Tyr |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Leu | Ala | Leu | Cys | Pro | Asp | Leu | Val | Ser | Lys | Asn | Leu | Gln | Arg | Glu | Arg |
| | | | 485 | | | | | | 490 | | | | | 495 | |
| Ile | Asn | Thr | Pro | Gly | Thr | Ile | Ser | Lys | Lys | Asn | Trp | Ser | Tyr | Arg | Val |
| | | 500 | | | | | | 505 | | | | | 510 | | |
| Arg | Pro | Ser | Leu | Glu | Glu | Leu | Ala | Ile | His | Lys | Lys | Phe | Asn | Gly | Tyr |
| | | 515 | | | | | 520 | | | | | | 525 | | |
| Ile | Glu | Lys | Ile | Leu | Thr | Gly | Leu | | | | | | | | |
| | 530 | | | | | 535 | | | | | | | | | |

<210> 329
 <211> 95
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 329 | | | | | | | | | | | | | | | |
| Arg | Ile | His | Arg | Lys | Asn | Met | Ser | Arg | Lys | Cys | Pro | Leu | Thr | Gly | Lys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Arg | Pro | Arg | Arg | Gly | Tyr | Ser | Tyr | Thr | Leu | Arg | Gly | Ile | Ala | Lys | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Lys | Lys | Gly | Ile | Gly | Leu | Lys | Val | Thr | Gly | Lys | Thr | Lys | Arg | Arg | Phe |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Phe | Pro | Asn | Met | Leu | Thr | Lys | Arg | Leu | Trp | Ser | Thr | Glu | Glu | Asn | Arg |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Phe | Leu | Lys | Leu | Lys | Ile | Ser | Ala | Ser | Ala | Leu | Arg | His | Ile | Asp | Lys |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Gly | Leu | Glu | Lys | Val | Leu | Glu | Arg | Ala | Lys | Ser | Lys | Asn | Phe | |
| | | | | 85 | | | | | 90 | | | | | 95 | |

<210> 330
 <211> 591
 <212> PRT
 <213> Chlamydia pneumoniae

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 330 | | | | | | | | | | | | | | | |
| Leu | Lys | Tyr | Arg | Glu | Ile | Phe | Met | Ser | Phe | Leu | Arg | Arg | His | Ile | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Phe | Arg | Ser | Gln | Lys | Gln | Leu | Ile | Asp | Val | Phe | Ala | Pro | Val | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Pro | Asn | Leu | Glu | Leu | Ala | Glu | Ile | His | Arg | Arg | Val | Ile | Glu | Asp | Gln |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Gly | Pro | Ala | Leu | Leu | Phe | His | Asn | Val | Ile | Gly | Ser | Ser | Phe | Pro | Val |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Leu | Thr | Asn | Leu | Phe | Gly | Thr | Lys | His | Arg | Val | Asp | Gln | Leu | Phe | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gln | Ala | Pro | Asp | Asn | Leu | Ile | Ala | Arg | Val | Ala | His | Leu | Ile | Ser | Ser |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Thr | Pro | Lys | Leu | Ser | Ser | Leu | Trp | Lys | Ser | Arg | Asp | Leu | Leu | Lys | Arg |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ile | Ser | Ser | Leu | Gly | Leu | Lys | Lys | Ala | Arg | Phe | Arg | Arg | Phe | Pro | Phe |
| | | 115 | | | | 120 | | | | | | 125 | | | |
| Val | Ser | Met | Ser | Ser | Val | Asn | Leu | Asp | His | Leu | Pro | Leu | Leu | Thr | Ser |
| | | 130 | | | | 135 | | | | | 140 | | | | |
| Trp | Pro | Glu | Asp | Gly | Gly | Ala | Phe | Leu | Thr | Leu | Pro | Leu | Val | Tyr | Thr |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Glu | Ser | Pro | Thr | Leu | Thr | Thr | Pro | Asn | Leu | Gly | Met | Tyr | Arg | Val | Gln | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Arg | Phe | Asn | Gln | Asn | Thr | Met | Gly | Leu | His | Phe | Gln | Ile | Gln | Lys | Gly | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Gly | Gly | Met | His | Leu | Tyr | Glu | Ala | Glu | Gln | Lys | Lys | Gln | Asn | Leu | Pro | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Val | Ser | Val | Phe | Leu | Ser | Gly | Asn | Pro | Phe | Leu | Thr | Leu | Ser | Ala | Ile | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Ala | Pro | Leu | Pro | Glu | Asn | Val | Ser | Glu | Leu | Leu | Phe | Ala | Thr | Phe | Leu | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Gln | Gly | Ala | Lys | Leu | Tyr | Lys | Lys | Thr | Asn | Asp | His | Pro | His | Pro | | |
| | | | 245 | | | | | 250 | | | | | 255 | | | |
| Leu | Leu | Tyr | Asp | Ala | Glu | Phe | Ile | Leu | Val | Gly | Glu | Ser | Pro | Ala | Gly | |
| | | 260 | | | | | | 265 | | | | | 270 | | | |
| Lys | Arg | Arg | Pro | Glu | Gly | Pro | Phe | Gly | Asp | His | Phe | Gly | Tyr | Tyr | Ser | |
| | 275 | | | | | | 280 | | | | | 285 | | | | |
| Leu | Gln | His | Asp | Phe | Pro | Glu | Phe | His | Cys | His | Lys | Ile | Tyr | His | Arg | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Lys | Asp | Ala | Ile | Tyr | Pro | Ala | Thr | Val | Val | Gly | Lys | Pro | Tyr | Gln | Glu | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Asp | Phe | Tyr | Ile | Gly | Asn | Lys | Leu | Gln | Glu | Tyr | Leu | Ser | Pro | Leu | Phe | |
| | | | 325 | | | | | 330 | | | | | | 335 | | |
| Pro | Leu | Val | Met | Pro | Gly | Val | Arg | Arg | Leu | Lys | Ser | Tyr | Gly | Glu | Ser | |
| | | 340 | | | | | | 345 | | | | | 350 | | | |
| Gly | Phe | His | Ala | Leu | Thr | Ala | Ala | Val | Val | Lys | Glu | Arg | Tyr | Trp | Arg | |
| | 355 | | | | | | 360 | | | | | 365 | | | | |
| Glu | Ser | Leu | Thr | Thr | Ala | Leu | Arg | Ile | Leu | Gly | Glu | Gly | Gln | Leu | Ser | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Leu | Thr | Lys | Phe | Leu | Met | Val | Thr | Asp | Gln | Glu | Val | Pro | Leu | Asp | Arg | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| Phe | Ser | Val | Val | Leu | Glu | Thr | Ile | Leu | Glu | Arg | Leu | Gln | Pro | Asp | Arg | |
| | | | 405 | | | | | 410 | | | | | | 415 | | |
| Asp | Leu | Ile | Ile | Phe | Ser | Glu | Thr | Ala | Asn | Asp | Thr | Leu | Asp | Tyr | Thr | |
| | | 420 | | | | | | 425 | | | | | 430 | | | |
| Gly | Pro | Ser | Leu | Asn | Lys | Gly | Ser | Lys | Gly | Ile | Phe | Met | Gly | Ile | Gly | |
| | 435 | | | | | 440 | | | | | | 445 | | | | |
| Lys | Ala | Ile | Arg | Asp | Leu | Pro | His | Gly | Tyr | Gln | Gly | Gly | Lys | Ile | His | |
| | 450 | | | | | 455 | | | | | 460 | | | | | |
| Gly | Val | Gln | Asp | Ile | Ala | Pro | Phe | Cys | Arg | Gly | Cys | Leu | Val | Leu | Glu | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | |
| Thr | Ser | Leu | Glu | Asp | Arg | Cys | Ile | Lys | Ser | Leu | Leu | His | His | Pro | Asp | |
| | | | 485 | | | | | 490 | | | | | | 495 | | |
| Leu | Lys | Ser | Trp | Pro | Leu | Ile | Ile | Leu | Ala | Asp | Asn | Leu | Arg | Glu | Thr | |
| | | 500 | | | | | | 505 | | | | | 510 | | | |
| Ile | Gln | Ser | Glu | Lys | Asp | Phe | Leu | Trp | Arg | Thr | Phe | Thr | Arg | Cys | Ala | |
| | 515 | | | | | | 520 | | | | | 525 | | | | |
| Pro | Ala | Asn | Asp | Leu | His | Ala | Leu | His | Ser | His | Phe | Ala | Thr | His | Arg | |
| | 530 | | | | | 535 | | | | | 540 | | | | | |
| Pro | Asn | Tyr | Asn | Phe | Pro | Phe | Val | Ile | Asp | Ala | Leu | Met | Lys | Pro | Ser | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | |
| Tyr | Pro | Lys | Glu | Val | Glu | Val | Asp | Pro | Ser | Thr | Lys | Gln | Lys | Val | Ser | |
| | | | 565 | | | | | 570 | | | | | | 575 | | |
| Glu | Arg | Trp | His | Ala | Tyr | Phe | Pro | Asn | Lys | Glu | Thr | Phe | Tyr | Ile | | |
| | | 580 | | | | | | 585 | | | | | 590 | | | |

<210> 331

<211> 354

<212> PRT

<213> Chlamydia pneumoniae

<400> 331

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Met | Asn | Lys | Arg | Gln | Lys | Asp | Lys | Leu | Lys | Ile | Cys | Val | Ile | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Thr | Leu | Ile | Leu | Val | Gly | Ile | Phe | Ala | Arg | Ala | Pro | Arg | Gly | Asp |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Thr | Phe | Lys | Thr | Phe | Leu | Lys | Ser | Glu | Glu | Ala | Ile | Ile | Tyr | Ser | Asn |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gln | Cys | Asn | Glu | Asp | Met | Arg | Lys | Ile | Leu | Cys | Asp | Ala | Ile | Glu | His |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ala | Asp | Glu | Glu | Ile | Phe | Leu | Arg | Ile | Tyr | Asn | Leu | Ser | Glu | Pro | Lys |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 |
| Ile | Gln | Gln | Ser | Leu | Thr | Arg | Gln | Ala | Gln | Ala | Lys | Asn | Lys | Val | Thr |
| | | | | 85 | | | | 90 | | | | | | 95 | |
| Ile | Tyr | Tyr | Gln | Lys | Phe | Lys | Ile | Pro | Gln | Ile | Leu | Lys | Gln | Ala | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asn | Val | Thr | Leu | Val | Glu | Gln | Pro | Pro | Ala | Gly | Arg | Lys | Leu | Met | His |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gln | Lys | Ala | Leu | Ser | Ile | Asp | Lys | Lys | Asp | Ala | Trp | Leu | Gly | Ser | Ala |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asn | Tyr | Thr | Asn | Leu | Ser | Leu | Arg | Leu | Asp | Asn | Asn | Leu | Ile | Leu | Gly |
| 145 | | | | 150 | | | | | 155 | | | | | | 160 |
| Met | His | Ser | Ser | Glu | Leu | Cys | Asp | Leu | Ile | Ile | Thr | Asn | Thr | Ser | Gly |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Asp | Phe | Ser | Ile | Lys | Asp | Gln | Thr | Gly | Lys | Tyr | Phe | Val | Leu | Pro | Gln |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Asp | Arg | Lys | Ile | Ala | Ile | Gln | Ala | Val | Leu | Glu | Lys | Ile | Gln | Thr | Ala |
| | | 195 | | | | 200 | | | | | | 205 | | | |
| Gln | Lys | Thr | Ile | Gln | Val | Ala | Met | Phe | Ala | Leu | Thr | His | Ser | Glu | Ile |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ile | Gln | Ala | Leu | His | Gln | Ala | Lys | Gln | Arg | Gly | Ile | His | Val | Asp | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ile | Ile | Asp | Arg | Ser | His | Ser | Lys | Leu | Thr | Phe | Lys | Gln | Leu | Arg | Gln |
| | | | | 245 | | | | 250 | | | | | | 255 | |
| Leu | Asn | Ile | Asn | Lys | Asp | Phe | Val | Ser | Ile | Asn | Thr | Ala | Pro | Cys | Thr |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | His | His | Lys | Phe | Ala | Val | Ile | Asp | Asn | Lys | Thr | Leu | Leu | Ala | Gly |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ser | Ile | Asn | Trp | Ser | Lys | Gly | Arg | Phe | Ser | Leu | Asn | Asp | Glu | Ser | Leu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ile | Ile | Leu | Glu | Asn | Leu | Thr | Lys | Gln | Gln | Asn | Gln | Lys | Leu | Arg | Met |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Ile | Trp | Lys | Asp | Leu | Ala | Lys | His | Ser | Glu | His | Pro | Thr | Val | Asp | Asp |
| | | | | 325 | | | | 330 | | | | | | 335 | |
| Glu | Glu | Lys | Glu | Ile | Ile | Glu | Lys | Ser | Leu | Pro | Val | Glu | Glu | Gln | Glu |
| | | | 340 | | | | | 345 | | | | | 350 | | |

Ala Ala

<210> 332
 <211> 243
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 332

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Ile | Ser | Ile | Glu | Met | Leu | Leu | Leu | Ser | Arg | Gln | Leu | Phe | Ser | Val |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Pro | Ser | Arg | Phe | Gln | Asp | Leu | His | Val | Tyr | Arg | Phe | Lys | Glu | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Lys | Leu | Leu | Gln | Phe | Met | Thr | Met | Val | Gly | Gly | Glu | Ile | Val | Val |
| | | 35 | | | | | 40 | | | | | 45 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Leu | Ala | Glu | Ile | Lys | Glu | Glu | Asp | Leu | Arg | Ala | Arg | Lys | Leu | Pro |
| 50 | | | | | | 55 | | | | | 60 | | | | |
| Val | Arg | Lys | Arg | Arg | Glu | Lys | Asn | Tyr | Leu | Arg | Ile | Phe | Arg | Val | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ser | Arg | Phe | Asp | Val | Met | Arg | Ile | Ile | Arg | Phe | Asp | Pro | Tyr | Gly | Ala |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Leu | Ser | Ala | Gln | Ser | Ile | Ala | Lys | Asp | Ser | Arg | Gln | Asn | Ser | Pro | Leu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Glu | Lys | Ile | Ser | Glu | Glu | Ile | Ala | Thr | Asn | Glu | Ala | Ile | Arg | Leu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ala | Leu | Leu | Ala | Ile | Gly | Asp | Arg | Glu | Gln | Glu | Glu | Lys | Lys | Gln | Arg |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| His | Arg | Tyr | Lys | Leu | Leu | Gly | Gln | Lys | Gln | Ala | Lys | Val | Leu | Leu | Ser |
| 145 | | | | 150 | | | | | | 155 | | | | | 160 |
| Gln | Leu | Arg | His | Val | His | Leu | Asp | Phe | Lys | Lys | Leu | Tyr | Cys | Asp | Ser |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Lys | Lys | Lys | Glu | Asp | Gln | Glu | Lys | Asp | Glu | Lys | Asn | Lys | Gln | Lys | Arg |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ser | Ile | Lys | Val | Thr | Lys | Lys | Lys | Lys | Gly | Ile | Ser | Leu | Gly | Ala | Ala |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ala | Ser | Gln | Ala | Ile | Ala | Ala | Ala | Ala | Glu | Ala | Trp | Val | Ile | Ala | Arg |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Asn | Lys | Gly | Val | Leu | Glu | Thr | Ala | Ser | Thr | Leu | Phe | Tyr | Gln | Lys | Asp |
| 225 | | | | 230 | | | | | | 235 | | | | | 240 |
| Glu | Glu | Ala | | | | | | | | | | | | | |

<210> 333

<211> 584

<212> PRT

<213> Chlamydia pneumoniae

<400> 333

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Gln | Arg | Ile | Ile | Met | Ala | Val | Ser | Gly | Gly | Gly | Gly | Val | Gln | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Ser | Asp | Pro | Gly | Lys | Trp | Asn | Pro | Ala | Leu | Gln | Gly | Glu | Gln | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Gly | Pro | Ser | Pro | Leu | Lys | Glu | Ser | Ile | Phe | Ser | Glu | Thr | Lys | Gln |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ala | Ser | Ser | Ala | Ala | Lys | Gln | Glu | Ser | Leu | Val | Arg | Ser | Gly | Ser | Thr |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gly | Met | Tyr | Ala | Thr | Glu | Ser | Gln | Ile | Asn | Lys | Ala | Lys | Tyr | Arg | Lys |
| 65 | | | | 70 | | | | | | 75 | | | | | 80 |
| Ala | Gln | Asp | Arg | Ser | Ser | Thr | Ser | Pro | Lys | Ser | Lys | Leu | Lys | Gly | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Phe | Ser | Lys | Met | Arg | Ala | Ser | Val | Gln | Gly | Phe | Met | Ser | Gly | Phe | Gly |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Arg | Ala | Ser | Arg | Val | Ser | Ala | Lys | Arg | Ala | Ser | Asp | Ser | Gly | Glu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Thr | Ser | Leu | Leu | Pro | Thr | Glu | Met | Asp | Val | Ala | Leu | Lys | Lys | Gly |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asn | Arg | Ile | Ser | Pro | Glu | Met | Gln | Gly | Phe | Phe | Leu | Asp | Ala | Ser | Gly |
| 145 | | | | 150 | | | | | | 155 | | | | | 160 |
| Met | Gly | Gly | Ser | Ser | Ser | Asp | Ile | Ser | Gln | Leu | Ser | Leu | Glu | Ala | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Lys | Ser | Ser | Ala | Phe | Ser | Gly | Ala | Arg | Ser | Leu | Ser | Leu | Ser | Ser | Ser |
| | | | 180 | | | | | 185 | | | | 190 | | | |
| Glu | Ser | Ser | Ser | Val | Ala | Ser | Phe | Gly | Ser | Phe | Gln | Lys | Ala | Ile | Glu |
| | | 195 | | | | 200 | | | | | 205 | | | | |
| Pro | Met | Ser | Glu | Glu | Lys | Val | Asn | Ala | Trp | Thr | Val | Ala | Arg | Leu | Gly |
| 210 | | | | | | 215 | | | | | 220 | | | | |

Gly Glu Met Val Ser Ser Leu Leu Asp Pro Asn Val Glu Thr Ser Ser
 225 230 235 240
 Leu Val Arg Arg Ala Met Ala Thr Gly Asn Glu Gly Met Ile Asp Leu
 245 250 255
 Ser Asp Leu Gly Gln Glu Glu Val Ser Thr Ala Met Thr Ser Pro Arg
 260 265 270
 Ala Val Glu Gly Lys Val Lys Val Ser Ser Ser Asp Ser Pro Glu Ala
 275 280 285
 Asn Pro Thr Gly Ile Pro Asn Ser Asn Thr Leu Glu Arg Ala Glu Lys
 290 295 300
 Glu Ala Glu Lys Gln Glu Ser Arg Glu Gln Leu Ser Glu Asp Gln Met
 305 310 315 320
 Met Leu Ala Arg Ala Met Ala Gly Leu Leu Thr Gly Ala Ala Pro Gln
 325 330 335
 Glu Val Leu Ser Asn Ser Val Trp Ser Gly Pro Ser Thr Val Phe Pro
 340 345 350
 Pro Pro Lys Phe Ser Gly Thr Leu Pro Thr Gln Arg Ser Gly Asp Lys
 355 360 365
 Ser Lys His Lys Ser Pro Gly Ile Glu Lys Ser Thr Asn His Thr Asn
 370 375 380
 Phe Ser Pro Leu Arg Glu Gly Thr Val Lys Ser Ala Glu Val Lys Ser
 385 390 395 400
 Leu Pro His Pro Glu Ser Met Tyr Arg Phe Pro Lys Asp Ser Ile Val
 405 410 415
 Ser Arg Glu Glu Pro Glu Ala Val Val Lys Glu Ser Thr Ala Phe Lys
 420 425 430
 Asn Pro Glu Asn Ser Ser Gln Asn Phe Leu Pro Ile Ala Val Glu Ser
 435 440 445
 Val Phe Pro Lys Glu Ser Gly Thr Gly Gly Ala Leu Gly Ser Asp Ala
 450 455 460
 Val Ser Ser Ser Tyr His Phe Leu Ala Gln Arg Gly Val Ser Leu Leu
 465 470 475 480
 Ala Pro Leu Pro Arg Ala Thr Asp Asp Tyr Lys Glu Lys Leu Glu Ala
 485 490 495
 His Lys Gly Pro Gly Gly Pro Pro Asp Pro Leu Ile Tyr Gln Tyr Arg
 500 505 510
 Asn Val Ala Val Glu Pro Pro Ile Val Leu Arg Ser Pro Gln Pro Phe
 515 520 525
 Ser Gly Ser Ser Arg Leu Ser Val Gln Gly Lys Pro Glu Ala Ala Ser
 530 535 540
 Val His Asp Asp Gly Gly Gly Gly Asn Ser Gly Gly Phe Ser Gly Asp
 545 550 555 560
 Gln Arg Arg Gly Ser Ser Gly Gln Lys Ala Ser Arg Gln Glu Lys Lys
 565 570 575
 Gly Lys Lys Leu Ser Thr Asp Ile
 580

<210> 334

<211> 47

<212> PRT

<213> Chlamydia pneumoniae

<400> 334

Tyr Leu Asp Ser Arg Ile Arg Val Ile Pro Leu Ala Arg Gln Arg Cys
 1 5 10 15
 Thr Leu Leu His Leu Leu Ala Val Leu Cys Pro Pro Ile Ser Phe Phe
 20 25 30
 Thr Gln Gly Val Ser Pro Cys Val Phe Phe Cys Phe Leu Asp Phe
 35 40 45

<210> 335
 <211> 106
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 335
 Val Asp Phe Phe Val Phe Val Phe Phe Met Gly Lys Pro Lys Lys Ser
 1 5 10 15
 Arg Thr Asp Arg Ala Leu Ala Gln Glu Ile Gln Lys Lys Ser Thr Glu
 20 25 30
 Val Leu Lys Lys Pro Ala Arg Ile Lys Ala Lys Asn Arg Arg Lys Phe
 35 40 45
 Leu Ile Ala Lys Glu Gln Lys Thr Leu Lys His Arg Ala Gln Glu Tyr
 50 55 60
 Asp Gln Leu Val Arg Ser Leu Leu Asp Ser Gln Lys Lys Asp Thr Asp
 65 70 75 80
 Lys Val Leu Ile Phe Asn Tyr Glu Asn Gly Phe Val Phe Thr Asp Lys
 85 90 95
 Asp His Phe Ser Lys Tyr Ser Ile Arg Leu
 100 105

<210> 336
 <211> 172
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 336
 Thr Met Ser Val His Ile Thr Pro Arg Lys Cys Phe Ile Leu Cys Ile
 1 5 10 15
 Leu Ser Met Phe Thr Leu Pro Thr Leu Phe Pro Lys Ala His Leu Ile
 20 25 30
 Leu Phe Ser Pro Tyr Ile Val Leu Cys Phe Tyr Cys Phe Ser Lys Asp
 35 40 45
 Lys Gly Leu Val Leu Ala Leu Gly Cys Gly Val Leu Ser Asp Leu Ala
 50 55 60
 Leu Gly Ser Arg Gly Val Phe Leu Leu Leu Tyr Pro Leu Thr Ala Leu
 65 70 75 80
 Ile Thr His Lys Ala His Leu Ile Phe Ser Lys Glu Ser Lys Ala Ala
 85 90 95
 Leu Val Ile Val Asn Met Ile Phe Tyr Gly Val Phe Leu Leu Leu Thr
 100 105 110
 Ile Pro Met Cys Ala Leu Phe Gly His Glu Val Arg Trp Ser Ile Asp
 115 120 125
 Val Leu Met Ile Pro Leu Lys Cys Ser Phe Leu Asp Asn Leu Ile Phe
 130 135 140
 Thr Ser Val Ile Tyr Ile Leu Pro Cys Ala Ile Asn Ser Gly Ile His
 145 150 155 160
 Lys Met Ile Ser Phe Phe Arg Arg Leu Val Cys Tyr
 165 170

<210> 337
 <211> 289
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 337
 Glu Ile Gly Met Leu Leu Arg Gly Ile Pro Ala Ala Glu Lys Ile Leu
 1 5 10 15
 Gln Arg Leu Lys Glu Glu Ile Ser Gln Ser Pro Thr Ser Pro Gly Leu
 20 25 30

Ala Val Val Leu Ile Gly Asn Asp Pro Ala Ser Glu Val Tyr Val Gly
 35 40 45
 Met Lys Val Lys Lys Ala Thr Glu Ile Gly Ile Ile Ser Lys Ala His
 50 55 60
 Lys Leu Pro Ser Asp Ser Thr Leu Ser Ser Val Leu Lys Leu Ile Glu
 65 70 75 80
 Arg Leu Asn Gln Asp Pro Ser Ile His Gly Ile Leu Val Gln Leu Pro
 85 90 95
 Leu Pro Lys His Leu Asp Ser Glu Val Ile Leu Gln Ala Ile Ser Pro
 100 105 110
 Asp Lys Asp Val Asp Gly Leu His Pro Val Asn Met Gly Lys Leu Leu
 115 120 125
 Leu Gly Asn Phe Asp Gly Leu Leu Pro Cys Thr Pro Ala Gly Ile Ile
 130 135 140
 Glu Leu Leu Asn Tyr Tyr Glu Ile Pro Leu Arg Gly Arg His Ala Ala
 145 150 155 160
 Ile Val Gly Arg Ser Asn Ile Val Gly Lys Pro Leu Ala Ala Leu Met
 165 170 175
 Met Gln Lys His Pro Gln Thr Asn Cys Thr Val Thr Val Leu His Ser
 180 185 190
 Gln Ser Glu Asn Leu Pro Glu Ile Leu Lys Thr Ala Asp Ile Ile Ile
 195 200 205
 Ala Ala Leu Gly Ala Pro Leu Phe Ile Lys Glu Thr Met Val Ala Pro
 210 215 220
 His Ala Val Ile Val Asp Val Gly Thr Thr Arg Val Pro Ala Asp Asn
 225 230 235 240
 Ala Lys Gly Tyr Thr Leu Leu Gly Asp Val Asp Phe Asn Asn Val Val
 245 250 255
 Thr Lys Cys Ala Ala Ile Thr Pro Val Pro Gly Gly Val Gly Pro Met
 260 265 270
 Thr Val Ala Met Leu Met Ser Asn Thr Trp Arg Cys Tyr Gln Asn Phe
 275 280 285
 Ser

<210> 338
 <211> 341
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 338
 Arg Cys Asp Lys Met Arg Ser Asn His Ser Ser Ser Trp Arg Arg Trp
 1 5 10 15
 Ser His Asp Cys Arg Tyr Ala His Glu Gln Tyr Met Ala Met Leu Pro
 20 25 30
 Lys Phe Phe Leu Val Leu Leu Cys Leu Gly Leu Cys Ser Cys Ser Gln
 35 40 45
 Lys Thr Thr Thr Ile Glu Gly Glu Gln Met Thr Ile Phe Tyr Arg Ile
 50 55 60
 Val Leu Gly Thr Ser Leu Ser Ala Lys Glu Lys Ala Ser Leu Ser Gln
 65 70 75 80
 Gln Ile Asp Arg Cys Phe His Lys Ile Asp Ser Ile Tyr Asn Asn Trp
 85 90 95
 Asn Pro Tyr Ser Glu Leu Ser Ile Ile Asn Arg Ala Pro Ala Asp Val
 100 105 110
 Pro Ile Thr Leu Ser Val Glu Leu Ser Glu Phe Leu Asp Gln Val Asp
 115 120 125
 Thr Leu Tyr Lys Leu Ser Glu Gly Arg Phe Asp Pro Thr Val Gly Pro
 130 135 140
 Leu Lys Thr Leu Trp Leu Leu His Leu Lys Ser Gln Thr Leu Pro Pro
 145 150 155 160

<400> 340

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Asn | Met | Lys | Phe | Val | Val | Ser | Arg | Asn | Glu | Leu | Gly | Asn | Leu | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Lys | Lys | Ile | Gln | Ser | Val | Val | Pro | Gln | Asn | Thr | Pro | Ile | Pro | Val | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Thr | His | Val | Leu | Ile | Glu | Thr | Tyr | Asn | Asp | Glu | Leu | Val | Phe | Thr | Ala |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Thr | Asp | Leu | Thr | Val | Ser | Thr | Arg | Cys | Val | Thr | Lys | Ala | Lys | Val | Tyr |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Glu | Lys | Gly | Ala | Ile | Ser | Ile | Pro | Ser | Lys | Arg | Phe | Phe | Gln | Leu | Val |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | |
| Lys | Glu | Leu | Thr | Glu | Ala | Asn | Leu | Glu | Ile | Ser | Ser | Ser | Ala | Gly | Glu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Met | Ala | Gln | Ile | Thr | Ser | Gly | Ser | Ser | Cys | Phe | Arg | Leu | Leu | Ser | Met |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Glu | Lys | Glu | Asp | Phe | Pro | Met | Leu | Pro | Asp | Ile | Gln | Asn | Ala | Leu | Arg |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Phe | Ser | Leu | Pro | Ala | Glu | Gln | Leu | Lys | Thr | Met | Leu | Gln | Arg | Thr | Ser |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Phe | Ala | Val | Ser | Arg | Glu | Glu | Ser | Arg | Tyr | Val | Leu | Thr | Gly | Val | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Leu | Ala | Ile | Ala | Asn | Gly | Val | Ala | Thr | Ile | Val | Gly | Thr | Asp | Gly | Lys |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Arg | Leu | Ala | Lys | Ile | Asp | Ala | Glu | Val | Thr | Leu | Asp | Lys | Ser | Phe | Ser |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Gly | Glu | Tyr | Ile | Ile | Pro | Ile | Lys | Ala | Val | Glu | Glu | Ile | Ile | Lys | Met |
| | | 195 | | | | 200 | | | | | | 205 | | | |
| Cys | Ser | Asp | Glu | Gly | Glu | Ala | Ala | Ile | Phe | Leu | Asp | Gln | Asp | Lys | Ile |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ala | Val | Glu | Cys | Asp | Asn | Thr | Leu | Leu | Ile | Thr | Lys | Leu | Leu | Ser | Gly |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Glu | Phe | Pro | Asp | Phe | Ser | Pro | Val | Ile | Ser | Thr | Glu | Ser | Asn | Val | Lys |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Leu | Asp | Leu | His | Arg | Glu | Glu | Leu | Ile | Thr | Leu | Leu | Lys | Gln | Val | Ala |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Phe | Thr | Asn | Glu | Ser | Ser | His | Ser | Val | Lys | Phe | Ser | Phe | Leu | Pro |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Gly | Glu | Leu | Thr | Leu | Thr | Ala | Asn | Cys | Thr | Lys | Val | Gly | Glu | Gly | Lys |
| | | 290 | | | | 295 | | | | | 300 | | | | |
| Val | Ser | Met | Ala | Val | Asn | Tyr | Ser | Gly | Glu | Leu | Leu | Glu | Ile | Ala | Phe |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Asn | Pro | Phe | Phe | Phe | Leu | Asp | Ile | Leu | Lys | His | Ser | Lys | Asp | Glu | Leu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Val | Ser | Leu | Gly | Ile | Ser | Asp | Ser | Tyr | Asn | Pro | Gly | Ile | Ile | Thr | Asp |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ser | Ala | Ser | Gly | Leu | Phe | Val | Ile | Met | Pro | Met | Arg | Leu | His | Asp | Asp |
| | | 355 | | | | | 360 | | | | | 365 | | | |

<210> 341

<211> 210

<212> PRT

<213> Chlamydia pneumoniae

<400> 341

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Thr | Thr | Leu | Pro | Met | Phe | Met | Lys | Ile | Cys | Ser | Leu | Lys | Leu | Lys |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |
| Asn | Phe | Arg | Asn | His | Ser | Asp | Leu | Glu | Ile | Ser | Leu | Ala | Pro | Lys | Leu |
| | | | 20 | | | | | 25 | | | | 30 | | | |
| Asn | Tyr | Ala | Gln | Gly | Lys | Thr | Asn | Leu | Leu | Glu | Ala | Leu | Tyr | Val | Leu |
| | | 35 | | | | | 40 | | | | | 45 | | | |

Ser Leu Gly Arg Ser Phe Arg Thr Gln His Leu Thr Asp Thr Ile Thr
 50 55 60
 Phe Gly Ser Ser His Phe Phe Leu Glu Thr Gln Phe Glu Lys Asp His
 65 70 75 80
 Leu Pro Gln Ala Leu Ser Ile Tyr Thr Asp Lys Gln Gly Lys Lys Ile
 85 90 95
 Cys Tyr Asn Gln Leu Pro Ile Lys Thr Leu Ser Gln Leu Ile Gly Lys
 100 105 110
 Val Pro Ile Val Leu Phe Ser Ser Lys Asp Arg Leu Leu Ile Ser Gly
 115 120 125
 Ala Pro Ala Asp Arg Arg Leu Phe Leu Asn Leu Leu Ser Gln Cys
 130 135 140
 Asp Asn His Tyr Thr Leu Cys Leu Ser Tyr Tyr His Arg Ala Leu Gln
 145 150 155 160
 Gln Arg Asn Ala Leu Leu Lys Ser Lys Gln Thr Ser Thr Val Ala Ser
 165 170 175
 Gly Met Asn Ser Trp Ser Asn Thr Ala Pro Thr Tyr Pro Ser Asn Gly
 180 185 190
 Phe Ser Val Val Arg Asn Phe Gln Ile Tyr Pro Lys Asn Phe Gly Leu
 195 200 205
 Thr Thr
 210

<210> 342
 <211> 105
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 342
 Pro Leu Tyr Pro Leu Leu Ile Val Leu Ser Ser Arg Ser Ser Ala Glu
 1 5 10 15
 Lys Cys Ser Leu Lys Lys Gln Ala Asn Leu Asn Arg Gly Leu Trp Asp
 20 25 30
 Glu Gln Leu Val Lys His Gly Thr Tyr Leu Ser Ile Gln Arg Phe Leu
 35 40 45
 Cys Ser Gln Lys Leu Ser Asp Leu Ser Lys Glu Leu Trp Ser Asn Asn
 50 55 60
 Leu Lys Glu Gln Leu Ala Leu Lys Phe Lys Ser Ser Leu Ile Lys Asn
 65 70 75 80
 Ser Asp Ile Ser Glu Thr Ala Val Ala Glu Glu Phe His Lys Gln Leu
 85 90 95
 Ser Ile Ser Leu Pro Arg Asp Leu Glu
 100 105

<210> 343
 <211> 112
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 343
 Gly Ser Thr Ser Val Gly Pro His Arg Glu Asp Phe Leu Leu Thr Met
 1 5 10 15
 Asn Gln Met Pro Val Ser Gln Phe Ser Ser Glu Gly Gln Lys His Ser
 20 25 30
 Leu Leu Ala Ile Leu Arg Leu Ala Glu Cys Leu Tyr Leu Lys Gln Ser
 35 40 45
 His His Val Ser Pro Leu Val Cys Leu Asp Asp Ile His Ala Gly Leu
 50 55 60
 Asp Asn Glu Arg Val Gly Gln Leu Leu Asp Pro Ala Pro Thr Leu Gly
 65 70 75 80

Gln Thr Leu Ile Thr Ser Thr His Met His Gly Glu Leu Pro Lys Thr
85 90 95
Ser Leu Val Leu Ser Ile Glu Asn Ala Gln Val Ser Glu Gln Ile Ile
100 105 110

<210> 344

<211> 148

<212> PRT

<213> Chlamydia pneumoniae

<400> 344

His Met Lys Lys Phe Leu Leu Thr Ile Leu Phe Leu Ala Val Gly Asn
1 5 10 15
Pro Leu Phe Ser Glu Thr Ser Val Ile Gln Thr Leu Pro Ser Gly Ile
20 25 30
Gly Gly Leu Lys Glu Thr Ser Lys Gln Lys Glu Ser Val Val Cys Val
35 40 45
His Ala Phe Leu Arg Ser Tyr Thr Ser Leu Lys Pro Ile Ala Arg Val
50 55 60
Leu Glu Lys Glu His Tyr Asp Val Phe Ile Trp Asn Tyr Glu Thr Arg
65 70 75 80
Lys Phe Thr Leu Glu Lys His Ala Glu His Leu Asn Arg Leu Leu Lys
85 90 95
Lys Ile Ala Glu Leu Lys Pro Gly Val Pro Ile Asn Phe Val Thr His
100 105 110
Ser Ile Gly Gly Val Ile Val Arg Val Ala Leu Ala His Pro Asp Cys
115 120 125
Pro Glu Glu Ala Lys Lys Glu Lys Leu Phe Ser Trp Leu Leu Arg Thr
130 135 140
Gln Gly Leu His
145

<210> 345

<211> 199

<212> PRT

<213> Chlamydia pneumoniae

<400> 345

Leu Pro Arg Arg Ser Gln Lys Arg Lys Ala Ile Leu Met Ala Pro Pro
1 5 10 15
Asn Ala Gly Ser Thr Leu Ala Arg Arg Tyr Arg Cys Val Lys Phe Val
20 25 30
Gln Phe Val Phe Gly Gly Lys Leu Gly Arg Gln Leu Leu Thr Tyr Cys
35 40 45
Pro Thr Lys Met Leu Asn Val Gly Lys Leu Pro Ser Ser Leu Asp Val
50 55 60
Leu Ile Leu Ser Gly Asn Arg His Ser Lys Phe Leu Pro Phe Arg Leu
65 70 75 80
Pro Tyr Glu Asn Asp Gly Lys Val Cys Thr Ile Glu Thr Lys Leu Asp
85 90 95
Thr Pro His Lys Ala Tyr Val Ile His Thr Ser His Thr Tyr Ile Ile
100 105 110
Thr Asn Arg Lys Ser Leu Tyr Leu Met Lys Glu Phe Leu Lys Glu Gly
115 120 125
Asn Thr Thr Pro Ile Ile Glu His Val Pro Glu Ala Ala Leu Glu Gln
130 135 140
Thr Val Met Glu Asp Lys Gln Lys Asn Ser Arg Leu Lys Pro Tyr Pro
145 150 155 160
Asn Gln Asp Ile Tyr Val Ile His Cys Phe Gly Ser Arg Pro Tyr Asn
165 170 175

Leu Tyr Gly Phe Pro Lys Lys Trp Ser Leu Asn Gln Lys Asn Glu Ile
 180 185 190
 Asn Pro Glu Lys Leu Glu Lys
 195

<210> 346
 <211> 625
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 346
 Ser Ser Arg Tyr Met Thr Ile Ile Tyr Phe Ile Leu Ala Ala Leu Ala
 1 5 10 15
 Leu Gly Ile Leu Val Leu Ile His Glu Leu Gly His Leu Val Val Ala
 20 25 30
 Lys Ala Val Gly Met Ala Val Glu Ser Phe Ser Ile Gly Phe Gly Pro
 35 40 45
 Ala Leu Phe Lys Lys Arg Ile Gly Gly Ile Glu Tyr Arg Ile Gly Cys
 50 55 60
 Ile Pro Phe Gly Gly Tyr Val Arg Ile Arg Gly Met Glu Arg Thr Lys
 65 70 75 80
 Glu Lys Gly Glu Lys Gly Lys Ile Asp Ser Val Tyr Asp Ile Pro Gln
 85 90 95
 Gly Phe Phe Ser Lys Ser Pro Trp Lys Arg Ile Leu Val Leu Val Ala
 100 105 110
 Gly Pro Leu Ala Asn Ile Leu Leu Ala Val Leu Ala Phe Ser Ile Leu
 115 120 125
 Tyr Met Asn Gly Gly Arg Ser Lys Asn Tyr Ser Asp Cys Ser Lys Val
 130 135 140
 Val Gly Trp Val His Pro Val Leu Gln Ala Glu Gly Leu Leu Pro Gly
 145 150 155 160
 Asp Glu Ile Leu Thr Cys Asn Gly Lys Pro Tyr Val Gly Asp Lys Asp
 165 170 175
 Met Leu Thr Thr Ser Leu Leu Glu Gly His Leu Asn Leu Glu Ile Lys
 180 185 190
 Arg Pro Gly Tyr Leu Thr Val Pro Ser Lys Glu Phe Ala Ile Asp Val
 195 200 205
 Glu Phe Asp Pro Thr Lys Phe Gly Val Pro Cys Ser Gly Ala Ser Tyr
 210 215 220
 Leu Leu Tyr Ser Asn Gln Val Pro Leu Thr Lys Asn Ser Pro Met Glu
 225 230 235 240
 Asn Ser Glu Leu Arg Pro Asn Asp Arg Phe Val Trp Met Asp Gly Thr
 245 250 255
 Leu Leu Phe Ser Met Ala Gln Ile Ser Gln Ile Leu Asn Glu Ser Tyr
 260 265 270
 Ala Phe Val Lys Val Ala Arg Asn Asp Lys Ile Phe Phe Ser Arg Gln
 275 280 285
 Pro Arg Val Leu Ala Ser Val Leu His Tyr Thr Pro Tyr Leu Arg Asn
 290 295 300
 Glu Leu Ile Asp Thr Gln Tyr Glu Ala Gly Leu Lys Gly Lys Trp Ser
 305 310 315 320
 Ser Leu Tyr Thr Leu Pro Tyr Val Ile Asn Ser Tyr Gly Tyr Ile Glu
 325 330 335
 Gly Glu Leu Thr Ala Ile Asp Pro Glu Ser Pro Leu Pro Gln Pro Gln
 340 345 350
 Glu Arg Leu Gln Leu Gly Asp Arg Ile Leu Ala Ile Asp Gly Thr Pro
 355 360 365
 Val Ser Gly Ser Val Asp Ile Leu Arg Leu Val Gln Asn His Arg Val
 370 375 380
 Ser Ile Ile Val Gln Gln Met Ser Pro Gln Glu Leu Glu Glu Val Asn
 385 390 395 400

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Val | Thr | Lys | Gln | Asp | Val | Leu | Asn | His | Pro | Ile | Trp | Asn | Met | Gly | Ser | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| Lys | Val | Thr | Val | Asp | Ser | Ser | Thr | Leu | Val | Asn | Lys | Gly | Leu | Glu | Ile | | |
| | 210 | | | | | 215 | | | | 220 | | | | | | | |
| Ile | Glu | Ala | Tyr | Trp | Leu | Phe | Gly | Leu | Glu | Asn | Val | Glu | Ile | Leu | Ala | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| Val | Ile | His | Pro | Gln | Ser | Leu | Ile | His | Gly | Met | Val | Glu | Phe | Leu | Asp | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |
| Gly | Ser | Val | Ile | Ser | Ile | Met | Asn | Pro | Pro | Asp | Met | Leu | Phe | Pro | Ile | | |
| | | 260 | | | | | 265 | | | | | | 270 | | | | |
| Gln | Tyr | Ala | Leu | Thr | Ala | Pro | Glu | Arg | Phe | Ala | Ser | Pro | Arg | Asp | Gly | | |
| | 275 | | | | | | 280 | | | | | 285 | | | | | |
| Met | Asp | Phe | Ser | Lys | Lys | Gln | Thr | Leu | Glu | Phe | Phe | Pro | Val | Asp | Glu | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| Glu | Arg | Phe | Pro | Ser | Ile | Arg | Leu | Ala | Gln | Gln | Val | Leu | Glu | Lys | Gln | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | |
| Gly | Ser | Ser | Gly | Ser | Phe | Phe | Asn | Ala | Ala | Asn | Glu | Val | Leu | Val | Arg | | |
| | | | | 325 | | | | | 330 | | | | | 335 | | | |
| Arg | Phe | Leu | Cys | Glu | Glu | Ile | Ser | Trp | Cys | Asp | Ile | Leu | Arg | Lys | Leu | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | |
| Thr | Thr | Leu | Met | Glu | Cys | His | Lys | Val | Tyr | Ala | Cys | His | Ser | Leu | Glu | | |
| | 355 | | | | | | 360 | | | | | 365 | | | | | |
| Asp | Ile | Leu | Glu | Val | Asp | Gly | Glu | Ala | Arg | Ala | Leu | Ala | Gln | Glu | Ile | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | |

<210> 348

<211> 329

<212> PRT

<213> Chlamydia pneumoniae

<400> 348

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Lys | Lys | Gly | Ser | Leu | Met | Ala | Leu | Gly | Pro | Ser | Pro | Tyr | Tyr | Gly | Val | | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | | |
| Ser | Phe | Phe | Gln | Phe | Phe | Ser | Val | Phe | Phe | Ser | Arg | Leu | Phe | Ser | Gly | | |
| | | | 20 | | | | | 25 | | | | | 30 | | | | |
| Ser | Leu | Phe | Thr | Gly | Ser | Leu | Tyr | Ile | Asp | Asp | Ile | Gln | Ile | Ile | Val | | |
| | 35 | | | | | | 40 | | | | | 45 | | | | | |
| Phe | Leu | Ala | Ile | Ser | Cys | Ser | Gly | Ala | Phe | Ala | Gly | Thr | Phe | Leu | Val | | |
| | 50 | | | | | 55 | | | | | 60 | | | | | | |
| Leu | Arg | Lys | Met | Ala | Met | Tyr | Ala | Asn | Ala | Val | Ser | His | Thr | Val | Leu | | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | | |
| Phe | Gly | Leu | Val | Cys | Val | Cys | Leu | Phe | Thr | His | Gln | Leu | Thr | Thr | Leu | | |
| | | | | 85 | | | | | 90 | | | | | 95 | | | |
| Ser | Leu | Gly | Thr | Leu | Thr | Leu | Ala | Ala | Met | Ala | Thr | Ala | Met | Leu | Thr | | |
| | | | 100 | | | | | 105 | | | | | 110 | | | | |
| Gly | Phe | Leu | Ile | Tyr | Phe | Ile | Arg | Asn | Thr | Phe | Lys | Val | Ser | Glu | Glu | | |
| | 115 | | | | | | 120 | | | | | 125 | | | | | |
| Ser | Ser | Thr | Ala | Leu | Val | Phe | Ser | Leu | Leu | Phe | Ser | Leu | Ser | Leu | Val | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | |
| Leu | Leu | Val | Phe | Met | Thr | Lys | Asn | Ala | His | Ile | Gly | Thr | Glu | Leu | Val | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |
| Leu | Gly | Asn | Ala | Asp | Ser | Leu | Thr | Lys | Glu | Asp | Ile | Phe | Pro | Val | Thr | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | |
| Ile | Val | Ile | Leu | Ala | Asn | Ala | Val | Ile | Thr | Ile | Phe | Ala | Phe | Arg | Ser | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| Leu | Val | Cys | Ser | Ser | Phe | Asp | Ser | Val | Phe | Ala | Ser | Ser | Leu | Gly | Ile | | |
| | 195 | | | | | | 200 | | | | | 205 | | | | | |
| Pro | Ile | Arg | Leu | Val | Asp | Tyr | Leu | Ile | Ile | Phe | Gln | Leu | Ser | Ala | Cys | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| Leu | Val | Gly | Ala | Phe | Lys | Ala | Val | Gly | Val | Leu | Met | Ala | Leu | Ala | Phe | | |
| 225 | | | | | 230 | | | | | | 235 | | | | 240 | | |